"THE FASTER THE MACHINES, THE BETTER THE POETRY": GEBHARD SENGMÜLLER'S *TV POETRY*

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ABSTRACT

Erin Dickey: "The Faster the Machines, the Better the Poetry": Gebhard Sengmüller's *TV Poetry*
(Under the direction of Cary Levine)

Vienna-based artist Gebhard Sengmüller's 1990s multimedia installation *TV Poetry* represented a critical and constructive response to television's influence in the late twentieth century, aligning it with a dialectical construction of electronic media in Marxist media theory. The work falls within art historical, literary, and technological lineages of systems, media, and telecommunications art. In its reconfiguration of television's discursive codes and its incorporation of networked engagement, *TV Poetry* represented an ambivalent acknowledgement of the relationship between cultural consumption and attention, and the potential of software to disrupt the one-way transmissions of broadcast television. The second version of *TV Poetry* more explicitly engaged a context of communicational borderlessness and growing possibilities for newer media to reconfigure power relations via its simultaneous emphasis on and collapsing of the distances between information transmission and reception, and its disruption of experiences of time and place, real and virtual, watching and reading, and creation and consumption.

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LIST OF ABBREVIATIONS

ASCII – The American Standard Code for Information Exchange

CPU – Central Processing Unit

EC – European Commission

GUI – Graphical User Interface

MMED – Multimedia Electronic Display

MOO – Multi-user dungeon [MUD], Object-Oriented

MUD – Multi-User Dungeon

OOP – Object-Oriented Programming

OCR – Optical Character Recognition

SNS – Social Networking System

INTRODUCTION

"He clears his throat and starts telling what he has been telling a thousand times before with a nasal and slightly bored voice."[1]

TV Poetry, a multimedia installation by Vienna-based artist Gebhard Sengmüller, operated as an open system simulating literary production as an autonomous process of information manipulation.[2] The first version of the work, exhibited at the 1993 Ars Electronica festival, took the form of a bank of processors: three rows of three computers each, with a central display monitor in front, lined the floor of its exhibit space in Brucknerhaus in Linz, Austria [figs. 1-2]. These computers continuously received and selected television imagery via on-site parabolic satellite dishes [fig. 3], converted the selected images to black and white, detected alphanumeric characters within those images with optical character recognition (OCR), and translated the characters into standardized ASCII language.[3] Attached monitors displayed the

[1] Text introducing the virtual exhibition "Tour-Guide" of *TV Poetry* in MIT's MediaMOO, part of the second version of the installation at "Medienbiennale 1994: Minima Media." From "tour_guide.txt," extracted by Kevin Jepson from an archived version of MediaMOO and sent via e-mail message to the author, March 11, 2018.

[2] Due to the ephemeral nature of these installations, the experiences and implications of *TV Poetry* described here are reconstructed based on Sengmüller's documentation of the work, as well as on descriptions in the exhibition catalogues for the 1993 Ars Electronica Festival and the 1994 Medienbiennale. Sengmüller exhibited *TV Poetry* in slightly different forms at Ars Electronica Linz (1993), Medienbiennale Leipzig (1994), Version 2.2 Saint-Gervais Genéve (1996), and V2_ in Rotterdam (1997) for its exhibition *Machine Aesthetics*. Gebhard Sengmüller, *TV Poetry: Maschinengesteuerte Textgenese als autonomes System* (2002), accessed January 21, 2018. http://www.gebseng.com/05_tv_poetry/01_text/tvpoetry.pdf; "TV Poetry," *V2.nl*, accessed January 21, 2018. http://v2.nl/archive/works/tv-poetry.

[3] The American Standard Code for Information Exchange, first versioned in 1963 as the earliest computer text format, standardized the numeric values assigned to characters, making possible the widespread computer transfer of text data. Though theorized much earlier, OCR technology remained largely conceptual until the development of computers in the 1950s. The commercial release of structural analysis OCR systems, which broke a character's structure into parts and described the features of and relationships between these parts as means of identifying the character, took place in the 1960s and 1970s. By 1985, commercial OCR systems were more widespread and higher performing. S. Mori, C.Y. Suen, and K. Yamamoto, “Historical Review of OCR Research and Development,” *Proceedings of the IEEE* 80, no. 7 (July 1992), 1030-48.

discrete steps of this process [figs. 4-6]. The resulting text was then filtered according to a predefined set of rules and output to the central display as "poetry," represented as a horizontal scroll of white text against a red screen [fig. 7].

The second iteration of *TV Poetry*, exhibited at the 1994 Medienbiennale in Leipzig, decentralized the work's TV-image selection and text processing components. Here, the program operated remotely from "field agencies" in the Netherlands, Germany, and Austria, sending output text back to the installation's central computer, located in Leipzig's Buntgarnwerke, a former textile factory. Whereas this version of *TV Poetry* featured only three on-site display monitors, the system made the converted-text "poetry" accessible to an internationally networked user community via MIT's MediaMOO, an online virtual environment [figs. 8-10].[4] The 100,000-square-meter textile factory, an architectural symbol of Leipzig's industrial decline, provided a poignant juxtaposition to the biennale's post-industrial electronic artworks. As the first large-scale media arts event in the recently unified former DDR (GDR) states, the exhibition featured works acknowledging and interrogating categories of old and new media, East and West Germany, utopic and dystopic views of industry and technology.[5]

[4] This MOO (multi-user dungeon, object-oriented) was a text-based, real-time, online virtual world created in 1992 at the MIT Media Lab. Users not only interacted with the virtual world, but also constructed it by creating new objects and places. Amy Bruckman and Mitchel Resnick, "The MediaMOO Project: Constructionism and Professional Community," *Convergence*, 1:1, Spring 1995, accessed January 21, 2018. https://www.cc.gatech.edu/~asb/papers/journal/convergence.html. Descriptions of the MediaMOO environment are drawn from articles by MediaMOO creator and main administrator Amy Bruckman and her collaborators, and from the available text extracted from an inactive version of the MOO. These text files were provided to the author via email by Kevin Jepson in coordination with Michael Day (Northern Illinois University), and Cynthia Payne (Clemson University), who plan to eventually make both a static and live state of the MediaMOO accessible to researchers. Text, objects, and interactions within MediaMOO were not systematically archived when the system was most active, 1993-1997. Though further exploration of this material has yet to be undertaken, it is possible that only the most recent text input within the rooms of the virtual environment remains.

[5] Dieter Daniels, "Fore & Afterword to *Minima Media*," in *Minima Media: Handbuch zur Medienbiennale Leipzig 94*, ed. Dieter Daniels (Oberhausen: Plitt, 1995), 9-10.

TV Poetry posed a critical and constructive response to television's influence in the late twentieth century. The work manifested neither an idealization of networked communication as a "solution" to problems inherent in television, nor an entirely negative vision of mass media as inherently repressive and totalizing. Instead, in its reconfiguration of television's discursive codes and its incorporation of a virtual form of engagement, *TV Poetry* represented an ambivalent acknowledgement of both the relationship between cultural consumption and attention, and the radical potential of software to disrupt the one-way transmissions of broadcast television.

By presenting an action typically associated with human creativity—writing poetry—as the work of an automatic system, *TV Poetry* associated human cognition with computer software, reflecting late capitalist anxieties over the computer's replacement of human labor, particularly in creative and perceptual (rather than manual) applications. Furthermore, in its presentation of a bank of computers as television "watchers" that produce "poetry" as an artifact of visual labor, *TV Poetry* interrogated television-watching as strictly a leisure activity. In an era of increasing commercialization of European telecommunications, the work critiqued both the established dichotomy between transmission and reception, and the rhetoric of freedom of choice that tended to mask commercial broadcast television's hold over the viewer's attention. At the same time, through its implicit figuration of the "poet" as a perpetually observing system designed to process satellite television input and generate text, *TV Poetry* disrupted the flow of television information by reconfiguring how that information was communicated—disordering it and detaching it from its associated imagery. By recombining TV text into a new material, the installation revealed information as always already mediated (whether electronically, culturally, or linguistically) while also imagining an emergent creativity as a metaphorical source of resistance to the cultural homogenization effected by mass media. Such imagined creativity is a

function of the work's transformation, rather than replication, of television. Additionally, while the 1994 version decentralized the installation's operations of TV image collection and selection, mirroring the internationalization of telecommunications systems since the 1970s, it also incorporated an alternate space for the global engagement with the products of such disruption in the form of the user-manipulable MOO. In this incorporation, the repressive operations of mass media could be complexly associated with a collaborative form of creativity.

The combination of the proliferation and increasing commercialization of mass media in Europe, the dawn of networked communication, and the increasing availability of personal computers informed the way *TV Poetry* modeled attentiveness to images, transformed mass media information, and imagined a use of electronic media that might counteract the simultaneously isolating and homogenizing effects of TV. The availability of cheaper communications technologies, particularly satellite, in Europe in the 1980s and '90s challenged established national media structures by making decentralization and privatization possible. At the same time, transnational communications organizations attained wider influence, leading to the re-regulation, and in many cases, the deregulation of public broadcasting.[6]

In its translation of media via media, its layering of different types of technology, *TV Poetry* combines modes of art incorporating telecommunications systems, mass media installations, and software. During the 1970s and 1980s, artists increasingly began to incorporate components of existing and developing telecommunications systems, including telephone, slow scan television, satellite, and early internet, into their work: Roy Ascott's telematic art, Liza Bear and Keith Sonnier's 1977 *Two-Way Demo: Send/Receive,* and the works of the collectives

[6] Karen Siune and Wolfgang Truetzschler, "Introduction," in *Dynamics of Media Politics: Broadcast and Electronic Media in Western Europe* (London; Newbury Park; New Delhi: Sage Publications, 1992).

Mobile Image (Kit Galloway and Sherrie Rabinowitz) and the Digital Art Exchange (Dax Group), among others, were intended to generate novel contexts for dialogue and collaboration. These artists drew not just on utopic conceptions about the possibility for dialogue and connection via electronic communication, but also worked, as media/bio-artist Eduardo Kac explained in 1992, towards the goal of "neutralizing" the closed system of meaning involved in a unidirectional model of communication by providing "participants with the same manipulation tools and codes at the artists' disposal" in order to expand possibilities for the bidirectional negotiation of meaning.[7] Other telecommunications works deployed communications technology as a pointed critique of its repressive usage by both governments and corporations. Exhibited a year before *TV Poetry* and originally commissioned for documenta IX in Kassel, Germany, media artist Dara Birnbaum's *Transmission Tower: Sentinel* used three ten-foot sections of a Rohm Sentinel steel transmission tower to suspend eight color monitors with corresponding video laser disc players and stereo sound channels, approximating the representation of "events that were obscured at their original spatial and temporal points of transmission," including video of Gulf War bombings.[8]

Earlier installation works related to the Fluxus movement, such as Nam June Paik's 1963 "Exposition of Music-Electronic Television" and Wolf Vostell's "Television Décollage" incorporated formal elements of the television screen and image selection and manipulation. The media art emerging from Fluxus artists in the 1960s, who incorporated multiple screens, unconventional gallery arrangements, and audience participation as a means of disrupting

[7] Eduardo Kac, "Aspects of the Aesthetics of Telecommunications," originally published in *Siggraph Visual Proceedings*, eds. John Grimes and Gray Lorig (New York: ACM, 1992), 47-57.

[8] Dara Birnbaum, "The Individual Voice as a Political Voice: Critiquing and Challenging the Authority of Media," in *Women, Art, and Technology*, ed. Judy Malloy (Cambridge, Mass.: The MIT Press, 1995), 144.

conventional experiences of the work, reflected a systems aesthetics, joining art and new technology in order to create process-based works. Jack Burnham, building off of his 1968 articulation of "systems esthetics," in which he identified a moment of "transition from an *object-oriented* to a *systems-oriented culture*," proposed in his essay for the 1970 exhibition *Software, Information Technology: its new meaning for art* that software, and by analogy systems art, "is aniconic…its images are usually secondary or instructional."[9]

Software art used to generate a product, like poetic text, as in the case of *TV Poetry*, has evolved along with the computer. Theo Lutz, described as the first "computational poet," used a computer to recombine chapter titles and subjects from Kafka's *The Castle* into phrases in his 1959 *Stochastic Texts.*[10] Stan VanDerBeek's late 1960s *Poemfields* experiments represented earlier attempts to translate the experience of one genre (poetry) into another (film), using computer graphics and programming. Alison Knowles and James Tenney's *The House of Dust* (1967-1970) consisted of multiple acts of translation: Tenney's translation into the computer language FORTRAN IV of lists of words compiled by Knowles, the computer permutation of these lists into quatrains, the eventual use of one of the produced quatrains to determine the design of a physical space that took the form of a biomorphic, fiberglass "house," and an audio component designed by Max Neuhaus that used thermal circuits to "translate" heat from the sun into sound amplified to people sitting inside the structure.[11] Within the realm of literary

[9] "Systems Esthetics," *Artforum* 7, no. 1 (September 1968), 30; "Software - Information Technology: Its New Meaning for Art," Jewish Museum, 1970, 11, accessed January 26, 2018, http://monoskop.org/images/3/31/Software_Information_Technology_Its_New_Meaning_for_Art_catalogue.pdf.

[10] Christopher Funkhouser, "Digital Poetry: A Look at Generative, Visual, and Interconnected Possibilities in its First Four Decades," in *A Companion to Digital Literary Studies*, eds. Susan Schreibman and Ray Siemens (Oxford: Blackwell, 2008).

[11] Hanna B. Higgins, "An Introduction to Alison Knowles's *The House of Dust*," in *Mainframe Experimentalism: Early Computing and the Foundations of the Digital Arts*, eds. Hannah B. Higgins and Douglas Kahn (Berkeley, CA: University of California Press, 2012), 195-199.

permutation in both analog and digital contexts, Tristan Tzara's 1920 "Dada Manifesto on Feeble Love and Bitter Love," William S. Burroughs' cut-up method, the mid-century permutational experiments of the French literary collection Oulipo, and Richard Bailey's 1973 *Computer Poems*—a poetry anthology wherein poets used computers as a means of critiquing humans' "automatic" language conventions—each built on already established practices of rule-based recombination of text, occasionally using mass media input to translate one genre into another.

In the '90s, the advent of the internet provided a new technological platform for artists to collaborate with one another. *The Thing*, for example, was an early '90s Bulletin Board System (BBS) that functioned as a discussion space for artists interested in media and technology.[12] *TV Poetry*'s use of the MediaMOO was tied to UnitN, a three-month collaborative project for new media artists in Austria in 1993. UnitN was both a real-world series of exhibitions, performances, workshops, and discussions, and a virtual space within the MediaMOO for artists to meet, share information, and collaborate.[13] *TV Poetry*'s combination of programmed text generation, physical installation, and collaborative virtual space, like the projects listed above, explored issues surrounding computer-aided artistic creation, how attention is compelled by television, and the possibilities for communication via electronic media.

Twenty-five years after *TV Poetry*, the capacity of technology to compel attention has not diminished, nor have anxieties about that capacity. Television and the internet have become largely hybridized as a mechanism for the generation of entertainment, information, and revenue.

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[12] "The Thing." Medien Kunst Netz. http://www.medienkunstnetz.de/works/the-thing/ (retrieved March 3, 2018); "History." The Thing. http://the.thing.net/about/about.html (retrieved March 3, 2018). This system was initially brought to my attention in conversation with Cary Levine and in Levine and Glahn's article, "The Future is Present: *Electronic Café* and the Politics of Technological Fantasy."

[13] Christine Meierhofer, "UnitN," *Leonardo*, Vol. 27, No. 1 (1994), 75.

As clicks determine advertising potential, virality replaces programmatic flow as the mode of managing and compelling consumer attention. Internet service providers occupy a contested space between public utility and commercial enterprise, distinctions which structure the extent to which they shape and have shaped the internet as a medium. Current social networking platforms have helped to generate the communities promised by their predecessor systems by amplifying some twenty-first-century protest movements. Still, these platforms wield massive influence through personal data collection and information filtering, manipulation, and targeting, in a manner opaque to the vast majority of their users, whose perceptual labor they employ as ad-viewers and whose personalities they quantify as minable data. *TV Poetry* remains relevant as a mode of media experimentation through its presentation of the practical parallels, overlaps, and tensions between successive generations of media technology, television and the internet. In its incorporation of a proto-social networking system (SNS) in the form of the MOO, the installation provided a glimpse of the hopes for such spaces. Looking back at *TV Poetry* provokes consideration of their current effects and still latent possibilities.

Chapter One explores how *TV Poetry* functioned as a systems model for human vision and attention. The model demonstrated how television fragments and compels the viewer's attention, while also asserting creative labor as a potential path for resistance to this influence. Lev Manovich's history of the rise of perceptual labor after World War II, Oskar Negt and Alexander Kluge's discussion of the consciousness industry's development of techniques for the occupation of the imaginative faculty, and Jonathan Crary's explorations of the historically

contingent ways in which global economic structures compel and condition attention support an argument framing *TV Poetry* as an allegory of perceptual labor in late capitalism.[14]

Through its translation of television into text, *TV Poetry* implicitly acknowledges Umberto Eco's and Stuart Hall's semiotic critiques of television, as well as Raymond Williams' concept of "flow."[15] Relying on the media histories of Ulrike Küchler and Roberto Simanowski, Chapter Two examines this connection, linking it to the formal association of *TV Poetry* as software to the literary and technological history of text generation.[16] The chapter sketches *TV Poetry*'s relationship to selected twentieth-century examples of combinatory poetry, mass media recombination, and text generation as a means of identifying the effects of rule-based text generation on literary reception: namely, its interference with codified meaning and its confounding of assumptions about authorship and creative genius. The gap between transmission and reception opened up by *TV Poetry*'s recombinatory processes models a way of reading TV (and other media, by extension) against the grain of hegemonic broadcast.

This exploration concludes with a discussion of the ramifications of the two major design changes in *TV Poetry*'s 1994 iteration: 1) how the use of "field agencies" across Europe in

[14] Lev Manovich, "The Automation of Sight: From Photography to Computer Vision," in *Electronic Culture: Technology and Visual Representation*, ed. Timothy Druckery. New York: Aperture, 1996: 229-239; Oskar Negt and Alexander Kluge, "The Public Sphere and Experience: Selections," trans. Peter Labanyi, *October, Vol. 46, Alexander Kluge: Theoretical Writings, Stories, and an Interview* (Autumn, 1988): 60-82; Jonathan Crary, *24/7: Late Capitalism and the Ends of Sleep* (London; New York: Verso, 2014); Jonathan Crary, *Suspensions of Perception: Attention, Spectacle, and Modern Culture* (Cambridge, Mass.: MIT Press, 1999).

[15] Umberto Eco, "Towards a Semiotic Critique into the Television Message," in *Television: Critical Concepts in Media and Cultural Studies, v. 2*, ed. Toby Miller (London: Routledge, 2003): 1-19; Stuart Hall, "Decoding and Encoding in the Television Discourse," in *Culture, Media, Language: Working Papers in Cultural Studies, 1972-79*, ed. Stuart Hall (London: Hutchison, 1980): 197-208; Raymond Williams and Ederyn Williams, *Television: Technology and Cultural Form* (London; New York: Routledge, 2003).

[16] Ulrike Küchler, "Reading Machines: On the Surface of Meaning – Beyond the Surface of Discourse," *Arcadia* 49, no. 1 (2014), 40–57; Roberto Simanowski, *Digital Art and Meaning: Reading Kinetic Poetry, Text Machines, Mapping Art, and Interactive Installations* (Minneapolis: University of Minnesota Press, 2011).

place of on-site satellite receivers reflected the work's context within a more internationally connected European media landscape; and 2) how the incorporation of remote access to *TV Poetry* via MIT's MediaMOO created an additional space of engagement and interaction, suggesting a participatory form of electronic communication as an alternative to the monologic transmission of television.[17] The possibility of response (of a two-way rather than one-way transmission) as the key to resisting the exploitive effects of mass media has a long tradition within Marxist theories of technology—from Brecht's 1932 call to convert the radio from an apparatus of distribution to one of communication to Enzenberger's insistence in 1970 on the emancipatory potential of new media despite its repressive deployment to Bill Nichols's 1988 identification of an analogous oscillation in computer/cybernetic systems between control and collectivity.[18] In its relationship to such dialectical constructions of electronic media, *TV Poetry*'s own ambivalent media critique thus relates to such examples of socialist media theory. The work's lack of resolution undermines binaries of repression and emancipation, transmitter and receiver, message and response in favor of multiple and continually reconfigured relationships between consumption and creation.[19] Such undermining points towards the use of technology as

[17] Though, as Mark Poster argues, the replacement of television's "isolation of citizens from one another" by online communication does not preclude the reproduction and reconfiguration of existing technologies of power in digital environments. "Cyberdemocracy: The Internet and the Public Sphere," in *Virtual Politics: Identity and Community in Cyberspace*, ed. David Holmes (London; Thousand Oaks; New Delhi: Sage Publications, 1997), 217.

[18] Bertolt Brecht, "The Radio as an Apparatus of Communication," in *Brecht on Film and Radio*, ed. Marc Silbermann (London: Methuen, 2000); Hans Magnus Enzenberger, "Constituents of a Theory of the Media," in *Video Culture: A Critical Investigation*, ed. John G. Hanhardt (Rochester, NY: Visual Studies Workshop Press, 1986), 96-123; Bill Nichols, "The Work of Culture in the Age of Cybernetic Systems," in *Electronic Culture: Technology and Visual Representation*, ed. Timothy Druckery (New York: Aperture, 1996), 121-144.

[19] The development of this idea of *TV Poetry*'s use of technology to reconfigure the conventional communicational relationships set up by broadcast television is inspired by Philip Glahn and Cary Levine's exploration of an earlier artistic exploration of "reconfigurable relationality," *Satellite Arts*, in their draft book chapter, provisionally titled "Satellite Arts: A Television of Attractions," 2 (unpublished, in possession of the author).

a means of facilitating a collective, partial, and dynamic mode of communication in place of a totalizing and static broadcast message.

CHAPTER 1: PAYING ATTENTION

The computer vision technologies constructed to help manage the increasing production of information in the latter half of the twentieth century are imagined in *TV Poetry* as both servant and mirror, assisting human creativity while modeling it in an elementary and sterile form. As an example of generative art, a machine continuously and autonomously converting TV to "poetry," *TV Poetry* allegorizes human attention to television.[20] Anthropomorphizing the mechanical, mechanizing the human, and complicating the division between human and machine, the work probes the relationships between consumption and creation, and attention and labor in a post-industrial global economy. *TV Poetry* models creativity as an effect of the application of a set of rules on informational input. At the same time, the work metaphorically represents human attention as mechanical, with creative production limited by the information transmitted by mass media—specifically, television. A machine incapable of looking away from television, *TV Poetry* deploys processes of continuous scanning and pattern recognition, performing the software analogue to human cognitive processes of observing, paying attention, and constructing meaning via creative production.

[20] I draw this usage of "allegory" from Geoff Cox's usage of the term (itself derived from Benjamin's theory of allegory in *The Origin of German Tragic Drama*) as the generation of an experience of the world as historical/transitory, fragmentary, dialectical, and as an aggregation of signs: "Objects are brought together through montage to disrupt the continuity of historical and ideological conceptions." *Antithesis: The Dialectics of Software Art*, accessed December 6, 2017, http://www.anti-thesis.net/wp-content/uploads/2010/01/antithesis.pdf (2010), 56; see also Bainard Cowan, "Walter Benjamin's Theory of Allegory," *New German Critique*, No. 2 (Winter, 1981), 109-122; Matthew Wilkens, "Toward a Benjaminian Theory of Dialectical Allegory," *New Literary History*, Vol. 37, No. 2 (Spring, 2006), 285-298.

At the same time as it mirrors human processing of visual information, *TV Poetry* alludes to technology's role as an information-filtering aid that makes humans more efficient at the perceptual labor that increasingly replaces mechanical labor in post-industrial economies—the work of scanning, processing, and categorizing both images and text. The work acknowledges and responds to the ideological implementation of technological media, and its phenomenological effects on human vision and attention. As Jonathan Crary suggests, the possibility of sustained attentiveness occasioned by technological innovation is tied to concurrent processes of economic modernization.[21] Just as nineteenth-century spectacle reflected the emergence of visual attention as both an opportunity for political control and a potential locus of resistance to that control, *TV Poetry* modeled ways of perceiving in a world with increasing amounts of visual information vying for viewers' attention.

The systematization of creativity in *TV Poetry*—as with that of other works of generative art—also reflects a late-twentieth-century anxiety about the relationship between technology and perceptual labor, over the potential usurpation by machines of those tasks that seem fundamentally human: the "anticipatory fear," expressed by Jacques Ellul, that the machine, through its perfection of a given creative technique, may replace the artist.[22] Yet, *TV Poetry* also models "creative technique" as potentially liberating; the machine does not replicate the content of television, but creates something new from it. The system does not just "pay attention"; it produces according to its own rules and technological capabilities.

[21] Crary, Suspensions of Perception, 1-3.

[22] Jacques Ellul, *The Technological Society* (1965), cited in Stroud Cornock and Ernest Edmonds, "The Creative Process Where the Artist Is Amplified or Superseded by the Computer," *Leonardo* 6, no. 1 (1973): 11–16.

TV Poetry 1/93: An Experimental Set-up

The first version of the installation at the 1993 Ars Electronica Festival comprised a set of 10 screens set up in a grid on the floor of its exhibition space in Linz, Austria's Brucknerhaus, as well as three parabolic satellites on the lawn outside. The screens displayed the parallel processing of different parts of the software program that converted television to text. This architecture of constantly flickering monitors and connected cables on the floor required the standing viewer to look down at the apparatus, rather than access the machine at a desk. The arrangement decontextualized the computer and the television from the functions of work and entertainment, creating a spatial hierarchy of human and machine.

The work thus recalled practices associated with the Fluxus artists of the 1960s, who incorporated TV screens and computers within installations as a means of manipulating and disrupting conventional experiences of exhibition and gallery space, functionally fragmenting viewers' attentions. Nam June Paik's 1963 "Exposition of Music-Electronic Television," for example, featured—in addition to prepared pianos, record and tape installations, a mannequin submerged in a tub, and the head of an ox—12 modified TV sets, scattered around the floor of Rolf Järling's Galerie Parnass in Wuppertal, Germany. This experience of the screen was designed to allow viewers some control over their reception of television imagery.[23] That same year, Wolf Vostell's "Television Décollage," an exhibition of video works deploying multiple TV sets displaying manipulated television imagery took place in New York.[24] The act of "décollage"—a form of violence to the broadcast image as well as antagonism towards its

[23] This work was first brought to my attention via Levine and Glahn's book chapter, "Satellite Arts: A Television of Attractions," 4; "Nam June Paik, 'Exposition of Music – Electronic Television'," Medien Kunst Netz, accessed February 28, 2018, http://www.medienkunstnetz.de/works/exposition-of-music/images/7/?desc=full.

[24] "Wolf Vostell, 'Television Décollage'," Medien Kunst Netz, accessed February 28, 2018, http://www.medienkunstnetz.de/works/television-decollage/.

audience—emphasized disruption as its own form of response to what Vostell framed as the coercive rhetoric of mass media.[25] Maurizio Bolognini's much later *Sealed Computers* (1992-) responded to a changed mode of electronic communication, from analog to digital. This installation deployed a related positioning with the then-current technology, networked computers set up on the floor of a space, their monitor ports sealed with wax to block access to the running processes. This configuration foregrounded the opacity of software, prompting a comparison with previous artistic critiques of technology, represented here by Paik and Vostell, which sought to make opaque technological practices more transparent and manipulable.[26] *TV Poetry* combined both central processing unit (CPU) and televisual display, highlighting a tension between these two modes, presenting technology as neither fully accessible or nor fully opaque, but provoking consideration of which components compel the viewer's attention, and which escape it.

TV Poetry's multiple changing screens and central display of horizontally scrolling text produced dynamic visual stimuli. The central monitor, though positioned in front, actually represented the final stage in the process of information transformation performed by the equipment behind it [fig. 1]. Outside Brucknerhaus, three parabolic satellite antennae tracked and received the transmissions of TV satellites serving Europe [fig. 3].[27] Within the exhibition space, corresponding satellite television tuners continuously switched to a new channel each second. This incessant, automated, random selection approximated a form of channel surfing, a means of demonstrating the system's attention to television itself, rather than to any one specific program

[25] Benjamin Lima, "Wolf Vostell's Décollage and the Forms of Destruction, 1958-1972" (Ph.D. diss., Yale University, 2009), 87-101.

[26] Cox, 54-55; Maurizio Bolognini,"Programmed Machines. Post-screen works: Computer sigillati/Sealed Computers," accessed January 21, 2018, http://www.bolognini.org/foto/index.htm.

[27] Sengmüller, *TV Poetry*, 5.

or channel transmitted. The last row of computers displayed these constantly changing television channels. In the middle of the installation, three CPUs randomly captured one image frame from each channel selection, converted the frames into black and white still images displayed on attached monitors, and transmitted those images as data files to the next row of CPUs [fig. 4-5]. That set of computers used optical character recognition (OCR) to extract text from the still images and convert it into ASCII text data files, a process of information filtering, pattern recognition and translation [fig. 6].

Mistakes and misrecognition were part of the system. The limitations of OCR technology in the early '90s inhibited the clean repetition of television text within produced poetry. This provided the possibility for innovation, for the production of material that did not map exactly to its television origin. The OCR function of the program, in addition to extracting text that appears on TV, also misinterpreted some elements of the video image itself as letters or punctuation, creating what Sengmüller called "text noise": characters generated by misrecognition of imagery as text.[28] The program might read a random line or shape as a glyph to be matched to a character. This "text noise" guaranteed that some novel content, arising from mistranslation of image to text, ended up in the final product. Conversely, text that appeared on TV in very large and clear letters, such as headlines and slogans, tended to survive processing intact—what Sengmüller termed "shining through"—hinting at the influence of visually dominant messaging over perceptive processes.

After OCR text extraction, a CPU next to the central display received the ASCII data files in random order from each of the computers in the second row. Another filtering process then erased all isolated, non-alphabetic characters (excluding punctuation) and added to or replaced

[28] Ibid.

incomplete text segments with similar words known to the system, a second type of pattern recognition. This filtered text was then output to the final CPU connected to the central display in front [fig. 7].

Media and Perceptual Labor in Late Capitalism

TV Poetry allegorized the structuring of human perception by specific technologies, satellite television and computer image- and text-processing, themselves rooted in history and contingent on larger social and economic systems. The work deployed technology to model ways of human seeing (as in its presentation of a set of computers "watching" and continuously processing television), as well as to foreground how technology is used to structure seeing itself. Jonathan Crary, in *Suspensions of Perception: Attention, Spectacle, and Modern Culture*, asserts that the ways that people pay attention are historically constructed. Using spectacle as a form of evidence indicating how economic systems condition modes of perception and creation, Crary identified late nineteenth-century aesthetic perception as arising out of processes of modernization bent towards constructing efficient, manageable, and mechanically mediated subjectivities.[29]

In the twentieth century, the perceptual labor of information filtering and image recognition effected a training of the eye analogous to that of nineteenth-century spectacle. Lev Manovich's histories of computer vision technology as a major component of labor in the post-industrial West identify the late twentieth century replacement of technological *aids* to human vision by technological *substitutes* for human vision. The transition from the mechanization of labor to the automation of labor in the twentieth century is associated with the development of digital computers during World War II and the evolution of computer graphics as a means of

[29] Crary, *Suspensions of Perception*, 1-11.

helping radar operators filter visual information; computer-aided vision became a means of managing information overflow, gradually optimizing tasks related to observation and decision.[30] Throughout the 1960s, new technologies developed to automate visual tasks, such as computer image processing, computer graphics, and computer-aided design.[31] Simultaneously, both computer scientists and artists experimented with using computers as art-making tools, imagining the computer as "artist," possessing a type of vision supplementary to that of humans.

Along with modeling computer vision as an aid to and condition for a historically constructed mode of seeing, *TV Poetry* addressed the international and commercial nature of television content in the late '80s and early '90s in its use of satellite receivers to select from channels broadcast across Europe. Prior to the 1980s, broadcasting in Europe was largely subordinated to public service broadcasting systems, designed with a national character and expected to represent the national interest. Therefore, broadcasting institutions were usually monopolistic, or in the hands of a public authority. Purposes for broadcasting were largely not commercial, but instead cultural and political. Whereas in the mid-twentieth century, communications systems were dominated by national regulations, market forces increasingly began to determine the shape of media across countries.[32] In their study of the increased influence of transnational multimedia organizations in the 1980s and early '90s, media social scientists Karen Siune and Wolfgang Treutzschler described the trends of decentralization and privatization of Western European national media structures as effects of both cheaper communication technologies—namely, the continued proliferation of communication satellites—

[30] Manovich, "The Engineering of Vision," 5-7; "The Automation of Sight," 229.

[31] Ibid.

[32] Siune and Truetzschler, "Introduction," in Dynamics of Media Politics: Broadcast and Electronic Media in Western Europe.

and of expanded market influence over national media systems.[33] The diversification of channels accessible via satellite receivers meant more choice for consumers, but also new market opportunities for investment or exploitation by media companies.

Writing about the internationalization of European broadcasting in the 1980s and 1990s, communications scholar Ralph Negrine notes that proposals by media corporations for the deregulation of nationalized media systems were typically represented as increasing consumer choice, making political opposition to the commercialization of media systems a fraught exercise. Negrine writes, "Social democrats could not argue against 'choice' because it appeared a reactionary argument, yet to accept 'choice' meant accepting a whole ideological baggage of consumerism and individualism. The political left was thus paralyzed in uncertainty."[34] Political conservatives, as well as advertisers, publishers, and owners of media and telecommunications companies and began to articulate an ideology of freedom and choice to support economic motives of privatization.[35] The expansion of choice meant a higher level of competition for viewer attention.

Emerging out of this atmosphere of contestation over the relationship between individual choice and freedom, *TV Poetry*'s representation of a mechanical attention to television critiques what had become the medium's function: to capture and maintain audiences. In its use of satellite receivers to provide a continuous flow of trans-European television channels, *TV Poetry* alluded to the uptick in international television content in the 1980s and early '90s, imagining the possible effects of steeper competition for viewership on decision-making and viewing habits of

[33] Ibid., 3-9.

[34] Ralph Negrine and Stylianos Papathanassopoulos, *The Internationalisation of Television* (London; New York: Pinter Publishers, 1990), 10.

[35] Ibid.

the consumer. With the computer vision of *TV Poetry*, attention is always devoted, but divided. Choice is hardly a question; channels are switched automatically, every second—extensiveness matters more than the intensiveness that individual choice implies. What matters to the system is access to available information, and then managing and collating of that information in service of the production of something new. In that sense, *TV Poetry* worked as a filtering device, meant to help "make sense" of an overwhelming amount of information. Ironically, it produced nonsense. The "shining through" of particularly dominant television text, usually from advertisements, in *TV Poetry*'s translation of TV to poetry, reflected the extent to which broadcasting was subservient to advertising, particularly in an era of more competitive markets.

Rather than simply compelling our attention, as Crary argued of nineteenth-century spectacles, the glut of information provided by television goes beyond mere distraction, but denies the possibility of being bored, of even the desire to shift attention (as represented by the regular shifting of channels every second in *TV Poetry*, a function determined not by choice, but by the programmatic command to randomly scan everything). In *24/7: Late Capitalism and the Ends of Sleep*, Crary connects the machine-based designation of 'sleep mode,' a state of low-power readiness, to the evolved notion of sleep as "simply a deferred or diminished condition of operationality and access." As our machines are never off, so humans decreasingly experience complete rest.[36] The fact that the machines in *TV Poetry* are functionally denied the capability of looking away (except as their human creators look away) reflects this loss of a state of rest in a late capitalist economy that requires ceaseless consumption in order to function.

[36] Crary, *24/7*, 11.

Machine Creativity

This relationship between visual information processing, labor, and creative production is reflected in the tagline scrolling continuously across the screen in a promotional video documenting *TV Poetry* at the Ars Electronica Festival, "the faster the machines, the better the poetry," defining poetic quality as a matter of volume.[37] Superficially, the phrase refers to the proportional relationship between the capacity of the installation's equipment and the "density, continuity, and recognizable content" of the resulting text.[38] The tagline, along with the system it describes, effectively aligns the creative pursuit of poetry with machine labor, ironically positing poetry's aesthetic quality as dependent on the speed of production.

As generative art modeling the relationship between consumption and creation, presenting machines as creators of art, and exploring the emergence of and possibility for creativity within machine, human, and political systems, *TV Poetry* both critiques the media technology that structures human perception, and imagines the emancipatory potential of such technology. Fredric Jameson frames the emergence of the post-industrial West, the coalescence of the global economy, and the demise of the welfare state as the structural ground for postmodern cultural production represented by commercial television, video art, and computer technology. This economic condition is characterized by "consumption of the very process of consumption: above and beyond its content and immediate commercial products." [39] So, too, the art emerging from this condition puts "the machine on both sides…as subject and object."[40] *TV*

[37] Sengmüller, *TV Poetry*.

[38] Ibid., 4.

[39] Fredric Jameson, *Postmodernism, Or, The Cultural Logic of Late Capitalism* (Durham: Duke University Press, 1991), 276

[40] Ibid., 73.

Poetry models such circular consumption, showing one machine (the computer) ceaselessly watching another (the TV).

Other works with which the first two versions of *TV Poetry* were exhibited at Ars Electronica and "Medienbiennale 1994: Minima Media" similarly centered on the operation of electronic media as consumed and consumer, mirror and creator. One of the more notable examples, a version of Nam June Paik's *TV Buddha* (1989), in which a bronze sculpture of Buddha faces a television showing a video of a candle burning, was installed at Medienbiennale 1994: "Minima Media." In previous versions of the work, which first emerged in the mid-'70s, the Buddha faced a monitor on which its own image was projected by a video camera, modeling the circular relationship between image production and consumption—one in which the human, as in *TV Poetry*, was conspicuously absent.[41]

The continuous scanning and pattern recognition of *TV Poetry*—processes with the human analogues of observing/paying attention and cognitive/perceptual labor—class this work with generative art, in which automated processes give the system (a computer program, a machine, a procedure) a degree of autonomy that results in a created product.[42] Such art practice has roots in cybernetics, systems art, and Conceptual art. In three seminal essays on art and technology from the late 1960s and early 1970s, Jack Burnham identified and explained the growing polarity between traditional objects of high art and the more recent impulse towards the creation of process-based artworks represented by cybernetic, performance, and systems art.[43]

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[41] "Nam June Paik: Buddha," in *Minima Media: Handbuch zur Medienbiennale Leipzig 94*, ed. Dieter Daniels (Oberhausen: Plitt, 1995), 32.

[42] Joline Blais and Jon Ippolito, *At the Edge of Art* (London: Thames & Hudson, 2006), 21; Inke Arns, "Read_me, run_me, execute_me, Code as Executable Text: Software Art and its Focus on Program Code as Performative Text," Medien Kunst Netz, accessed March 2, 2018, http://www.medienkunstnetz.de/themes/generative-tools/read_me/print/.

[43] Burnham, "Notes on Art and Information Processing"; "Real Time Systems"; "Systems Esthetics".

Earlier rule-based and Conceptual art similarly focused on process rather than product, with Sol Lewitt's classic formulation, "The idea is the machine that makes the art," calling attention to a larger network of forces that generate art, products, and objects, as well as disassociating such products with individual intention and authorship.[44] In this instance, *TV Poetry* is concerned with both presenting a system that "makes" art (to be alternately construed as both an aid to and replacement for the artist) and the system as art itself, modeling modes of production and experience.

These concerns provoke questions about how creativity emerges, imagining the machine, even superficially, as anthropomorphic. Cybernetic artworks using artificial intelligence as an analogue of human intelligence arose out of a context of systems thinking, information theory, and neuroscience. As a field of science and industry, cybernetics emerged in the 1940s from the interests of both biological and physical scientists in the construction of information as a theoretical entity and in the understanding of human neural structures in terms of flows of information.[45] First conceived by Warren McCullough and Walter Pitts in 1943, the artificial neuron, a mathematical function serving as a model of human biological neurons, was already a topic of conversation at the Macy Conference on Cybernetics in 1946. One of the key assumptions underlying early artificial intelligence research was that cognition is rule-bound; thought was represented as essentially the manipulation of algorithms.[46] McCullough conceived

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[44] Sol Lewitt, "Paragraphs on Conceptual Art," *Artforum*, 1967. Decades earlier, Laslo Moholy-Nagy's declared more interest in the total system of society, in the "ABC of expression itself," than in the "'objective' quality of expression usually called 'art'," László Moholy-Nagy, *The New Vision: Fundamentals of Design, Painting, Sculpture, Architecture*, trans. Daphne M. Hoffmann (New York: W.W. Norton & Co., 1938), 8.

[45] N. Katherine Hayles, "Contesting for the Body of Information," in *Systems*, ed. Edward Shanken, Documents of Contemporary Art (London: Whitechapel Gallery, 2015), 36.

[46] Ibid., 41.

of the neuron-to-neuron connection as an interface, a "gap and infinitesimal delay." This gap represented, for McCullough, an "existential object." He held that "any computing machine which can detect a discrepancy between what it calculated and its actual output may be said to have a will of its own."[47]

For social theorists Oskar Negt and Alexander Kluge, fantasy represents a defense mechanism against, and unconscious criticism of, alienation—the estrangement of an individual from her autonomy by the capitalist mode of production. As part of what Negt and Kluge term the "production public sphere," state/commercial television's main function is to maintain order and legitimate the status quo through the domestication of individual fantasy: keeping the [proletarian] viewer occupied.[48] However, this occupation is not total. The novel "creation" represented in *TV Poetry*—the "text noise" that is the result of the gap between actual television text and what the OCR program recognizes as television text—provokes a reconsideration of the machine not just as filtering human vision, but as seeing autonomously, with meaningful and transmittable perceptions. The potential posthuman conception of disembodied, technological consciousness, conveyed by McCullough as the discrepancy between calculation and creation, also serves as a metaphor for human struggle that is increasingly technological.[49] The autonomous system provides a useful canvas on which to project anxiety about the instrumentalization of human cognition, how the human becomes mechanized.

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[47] Joseph Dumit, "Neuroexistentialism," in *Sensorium: Embodied Experience, Technology, and Contemporary Art*, ed. Caroline A. Jones (Cambridge, Mass.: MIT Press, 2006), 184.

[48] Negt and Kluge, 72-76.

[49] Commonly, "posthuman" refers to the union of human with intelligent machine. The posthuman perspective privileges information over material, considers consciousness an effect of larger systems, and thinks of body parts as prostheses. N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago, IL: University of Chicago Press, 1999), 3.

In a 1949 interview with the London *Times*, Alan Turing speculated on the computer's potential for competitive entry into the creative labor force, saying, "I do not see why it [a computer] should not enter any one of the fields normally covered by human intellect, and eventually compete on equal terms. I do not think you can even draw the line about sonnets, though the comparison is perhaps a little bit unfair because a sonnet written by a machine will be better appreciated by another machine." Dryly, Turing acknowledged that while a computer's rate of poetry production may match or exceed that of a human, its quality, as assessed by a human reader, may not. [50]

Arguing that computer processes possessed "at least some of the external attributes of creativity," Michael Noll, then an engineer at Bell Telephone Laboratories, conducted a 1965 experiment loosely based on the Turing Test. It was designed to see if humans could detect a machine-generated artwork when it was placed side-by-side with a human-generated work. In Noll's prediction, machine intelligence would free artists from having to master more technical elements of media, leading to an associated privileging of ideas over mere material.[51] Noll juxtaposed Mondrian's "Composition with Lines" with a computer-generated picture, its bars placed according to a number generator designed to statistically approximate elements in the Mondrian painting. Out of 100 subjects to whom the two works were shown side-by-side, 59 preferred the computer-generated picture. Noll's experiment focused solely on reception of the artwork produced, rather than the process through which it was created. By highlighting product and obscuring the differences in process between human and machine creation, Noll pitched for the computer's creative validity.

[50] Alan Turing, "The Mechanical Brain," *Times* (London), June 11, 1949.

[51] Michael Noll, "The Digital Computer as a Creative Medium," *IEEE Spectrum* 4, no. 10 (October 1967), 90.

Similarly demonstrating how the proliferation and evolution of computing technology have complicated conceptions of machine creativity, computer artist Frieder Nake traces the contested notion of creativity represented by Turing's initial dismissal within the context of computer art, noting that the contemporary mystification of "creativity" stems from its measurement within twentieth-century IQ tests. Instead of positing creativity as a measurable attribute and commodity, Nake argues that the term maybe more usefully understood (within the context of computer art) as situationally emergent within collectives, as opposed to attached to individuals. Nake writes, "We may align intelligence with making sense in a situation that makes sense. If we do so, creativity could be viewed as making sense in situations of nonsense. Dream and fantasy are, perhaps, more substantial to creative behavior than anything else."[52]

Though Crary argues that, by compelled attention, "a perceiver becomes open to control and annexation by external agencies," he also asserts that "attention is the means by which an individual observer can transcend those subjective limitations and make perception *its own*."[53] Sengmüller has characterized *TV Poetry* as a way of dealing with the impossibility of absorbing all the available information transmitted by the television, of coping with constant stimulation not with paralysis, but with invention.[54] Even as *TV Poetry* presents a limited perceiver (in the form of the networked computer system) that is solely a site of control, the installation as an allegory of computer attention also offers machine creativity as a fantasy of transcendence. This transcendence is signaled by the poetry produced, which represents the transformation of

[52] Frieder Nake, "Construction and Intuition: Creativity in Early Computer Art," in *Computers and Creativity*, eds. Jon McCormack and Mark d'Inverno (Heidelberg; New York; Dordrecht; London: Springer, 2012), 62.

[53] Crary, Suspensions of Perception, 5.

[54] Gebhard Sengmüller, "Four Media Archeological Artworks," in *Interface Cultures: Artistic Aspects of Interaction*, eds. Christa Sommerer, Laurent Mignonneau, and Dorothée King (Bielefeld, Germany: Transcript-Verlag, 2008), 275.

information, rather its reproduction. In the case of *TV Poetry*, such production, as argued in Chapter Two, is not easily assimilable into the logic of mass media transmission and reception.

CHAPTER 2: GENERATING TEXT

As a form of text generator, *TV Poetry* randomly selected, recombined, and translated television text and imagery. In doing so, it arbitrarily interfered with how TV communicates, compels attention, and exerts control—even as it acknowledged what media theorist Friedrich Kittler has called the "radical cutting" inherent in television.[55] In contrast to film technology, which consists of sequences of analog photographs, TV requires the continuous decomposition of images into individual pixels in order to be transmitted and then reassembled by a receiver.[56] Though *TV Poetry* acknowledged a semiotic critique of television as a medium that exploits how both image and language can be deployed to structure experience, it also undermined TV's communicative authority by converting it into and juxtaposing it with another genre, poetry, with its own mode of reception and set of cultural associations. In its conversion of television into poetry, the work did not simply use recombination as a method of interfering with television's transmitted codes. By foregrounding television's dis- and reassembly of information, *TV Poetry* interrogated the linguistic, cultural, and political conditions that ground the transmission and reception of television messages. Such conditions are themselves structured by dichotomies of poetry and television, reading and watching, and orality and literacy.

Tracing the literary and technological traditions that *TV Poetry* falls within—combinatory poetry as well as text processing—helps to illuminate the ways in which language structures

[55] Friedrich A. Kittler, *Optical Media: Berlin Lectures 1999* (Cambridge, UK; Malden, MA: Polity Press, 2010), 209.

[56] Paul Nipkow's 1888 patent uses the word "bildpunkt", or "picture point." Ibid.

experience. Despite its undercutting of language rules, the installation also demonstrated the recombinatory functions of electronic media itself, emphasizing how information is always already translated. This next level of recombination complicates a reading of the artwork as critiquing television for being repressive in and of itself. *TV Poetry,* though acknowledging critiques of technology (a category in which language is included) as potentially oppressive, also upends a totalizing, unambiguously critical reading of both television and newer media by demonstrating how these communications technologies, by virtue of their continuous mediation, can provide sites for the production of alternative meanings.

TV Poetry as Television and Poetry

In 1974, Raymond Williams identified the defining characteristic of broadcasting as "sequence or flow." This flow, the continuous interruption of programs by commercials and vice versa, functioned as a means of retaining viewers beyond any specific program or interval. Flow worked against the "habitual vocabulary of response and description," which was shaped by the temporary "experience of discrete events," such as a book, a play, or a poem.[57] Advertisements and commercials for future programs become obvious as the "true sequence" of television, with the scheduled programs serving as the vehicle for these messages; like Adorno's characterization of latent and manifest TV messaging, "the real internal organization is something other than the declared organization." The effect of this flow was, despite the interruption of current programming, the generation of "a single irresponsible flow of images and feelings": a discrete series of events that television unified.[58] In this sense, it was not just television that *TV Poetry* transformed; the installation transferred the experience of flow onto the poetic form.

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[57] Williams, 86-87.

[58] Williams, 92-95; McLuhan had earlier argued for the unifying effect of television. in contrast to the fragmentation of the senses in phonetic writing, he argued that TV is synaesthetic, combinatory: "Phonetic writing, alone, has the

TV Poetry's configuration of a complex and interpenetrating relationship between poetry, satellite television, and computing was designed to create a dynamic experience of image and text, reflecting a sense of that experience as networked, globally transmissible, and collectively produced. The framing of the computer's output within the realm of the literary was an attempt to estrange and set apart its newly created text from all other TV text.[59] Undivided by lines and stanzas, the continuous scroll of white text across the red screen of *TV Poetry*'s main monitor used wholly different formal means to set itself apart, inverting the typical way of reading screen text, eyes skimming across the screen. With *TV Poetry*, the flow of television carries over into the presentation of flowing poetry. The work both focused on and undermined the assumed code of television by transmuting it into another genre, which has a distinct set of cultural associations. In this transformation, *TV Poetry* juxtaposed the subjective experiences of reading and seeing, as well as literacy and orality, as the structuring competencies of culture.

Due to the aforementioned scrambling of the positions of reader and writer, transmitter and receiver, *TV Poetry* sketched a reconfiguration of the "confusion" effect of TV, mixing the oracular and ocular with the textual. In 1993, Robert Romanyshyn called TV "the cultural unconscious of the book," arguing that television challenged the modern focus on the text by dispensing with rationality, coherence, continuity, and concentration—all qualities assumed to be products of the transition from an oral to a literate culture.[60] Equating the emergence of TV with

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power of separating and fragmenting the senses and of sloughing off the semantic complexities. The TV image reverses this literate process of analytic fragmentation of sensory life." Marshall McLuhan, "Television: That Timid Giant," in *Television: Critical Concepts in Media and Cultural Studies, v. 2,* ed. Toby Miller (London: Routledge, 2003): 38.

[59] Roman Jakobson, "A Postscript to the Discussion on Grammar of Poetry," *Diacritics* 10, no. 1 (1980), 23. Jacobson wrote that poetry "sets off the structural elements of all the linguistic levels, from the network of distinctive features to the arrangement of the entire text."

[60] Robert D. Romanyshyn, "The Despotic Eye and Its Shadow: Media Image in the Age of Literacy," in *Modernity and the Hegemony of Vision,* ed. David Michael Levin (Berkeley: University of California Press, 1993), 340.

the appearance of a "a new, technologically produced orality," Romanyshyn asserted that in the postliterate world of which TV is the center, "knowing is emotional, participatory, and sensuous, rather than rational, detached, and logical…waking and dreaming are less clearly distinguished and are more confused." The confusion of this experience arises from "the relation between the medium, with its multi-perspectival, collage type of consciousness, and the viewer, with his or her still relatively intact linear perspectival consciousness."[61]

In addition to interfering with television messaging by subjecting it to rule-based recombination, *TV Poetry* also focused on the recombinatory functions of electronic media itself, detecting and exposing the patterns of communication that exist across media. *TV Poetry* foregrounded the often-obscured transformation of information by electronic media: television's conversion of picture and sound into analog or digital signal and back again; the use of text formats like ASCII that standardize the translation of characters into machine-readable code; and the early internet's modulation and demodulation of digital information and analog sound as a means of transmission. Media theorist Wolfgang Ernst framed TV technology as itself a type of fragmentation and reassembly, describing the TV set "as a signal machine that provides disturbance in the technical sense as information." The fact that "no image is ever constituted entirely in a single instant" gives television a wider range of options, both detectable and undetectable by the human eye, for manipulating the surface of the image.[62] This element of continuous incision was heightened in *TV Poetry*, which conducted a secondary cutting of the television image by randomly selecting still frames from constantly switching channels to

Romanyshyn frames this postmodern orality as ultimately liberating, because not merely text-centered.

[61] Ibid., 341–342.

[62] Wolfgang Ernst, "Between Real Time and Memory on Demand: Reflections on/of Television," *The South Atlantic Quarterly*, 101, 3 (Summer 2002), 629-633.

binarize and translate. Though the effect of watching television might be, as Raymond Williams argues, an experience of unified flow, the recombinatory mechanism of television works largely undetected beneath the surface. The 1993 version of *TV Poetry* raised awareness of that constant "disturbance" in its presentation of rows of constantly flickering and changing monitors.

In its 1994 iteration, *TV Poetry* relied on modems and existing telecommunications infrastructure to collect processed text from three separate stations in Germany, Austria, and the Netherlands. In doing so, it widened the net for possible television channels to capture, but it also incorporated yet another process of information transformation. Dialup modems functioned via the modulation, or signal conversion, of digital data into analog sound waves so that information could be transmitted via telephone wires, and then demodulation from analog to digital, to be made available on the receiving computer. Transmitting information via modem is a process of double translation; incorporating early internet technology in addition to the "decentralization" of *TV Poetry* in its second version added an additional element of information manipulation. Each of these technologies is based upon the requirement that information must in some way be transformed in order to be communicated. In juxtaposing these media, as well as televisual and poetic forms, *TV Poetry* generates an understanding of experience as continuously mediated via language and other tools.

Poetic Text Generation as Translation

In addition to cutting up text written within the media apparatus to parallel the recombinatory operations of TV and digital media, *TV Poetry* jumbled and reconfigured the locations of reader and writer, of transmitter and receiver. *TV Poetry*'s "poetry" reads largely as nonsense, but its identification as poetry encourages the human observer to attempt to make sense of it. A sample:

Genu@ von A
ROTTES 360 D
EGRE
HOR'ZOHTLLi
& ERT'eLLi
Fiii4ay 2.10r
COWING SOON
Y:' COWING S
OON
WADE rURELY
FOR LI77LS psisi7=
G wi7:c:I,,ci'oir:'
ELP CLEAK YO
UK NOSE
SOO7E YOUK 7
KOA7
THE LEADING
v Vegerbles
you c=n m=ke[63]

The text encourages the reader's interpolation of incomplete words and phrases—an automatic translation of the computer's "you c=n m=ake" into "you can make" and "COWING SOON" into "coming soon." This calls attention to the extent to which human strategies of pattern recognition and sensemaking seem automatic, as well as to a poststructuralist understanding of the act of reading as essentially an act of rewriting. The reader, in addition to or in place of the writer, is the site of not just the completion of words or sentences, but also the production of meaning. *TV Poetry*'s output text is less about poetry as a final product than it is about the recombinatory and meaning-making processes it foregrounds.

TV Poetry is situated within traditions of combinatory poetry, modernist poetics, postmodern theories of the author, and computer text generators. Its poetic output resembles literary projects that use content from mass media as the raw material for recombination, as well

[63] Sengmüller, *TV Poetry*, 7. Sengmüller, not the system, generated these line breaks. In the installation, this text would have appeared as a continuous horizontal scroll on the central display. In the promotional video to the 1993 version, a machine voice recited the text aloud, lending an oral and performative dimension to the "poetry."

as technological projects that interrogate the relationship between the mechanical production of language and the generation of meaning. Some earlier recombinatory poetic projects also relied on the nonsensical and absurd as a means of demystifying poetry as an extrasemantic art form.[64] In his 1920 "Dada Manifesto on Feeble Love and Bitter Love," poet and artist Tristan Tzara gave instructions on how to make a Dadaist poem:

> Take a newspaper.
> Take a pair of scissors.
> Choose an article as long as you are planning to make your poem.
> Cut out the article.
> Then cut out each of the words that make this up article and put them in a bag.
> Shake it gently.
> Then take out the scraps one after the other in the order in which they left the bag.
> Copy conscientiously.
> The poem will be like you.
> And here you are a writer, infinitely original and endowed with a sensibility that is charming, though beyond the understanding of the vulgar.[65]

Tzara helpfully provided the results of such an experiment as a footnote to his manifesto. These instructions, like *TV Poetry*, urge the recombination, according to a set of rules and incorporating an element of chance, of the fleeting messages of mass media into an "original" poem, reflective of its author in the sense that the author may be as much a product of the homogenizing effects of media as her poem. Tzara's method, as well as the later cutup technique of William S. Burroughs and *TV Poetry*, undermine traditional authorship by aligning the creative process with rule-based recombination. In the case of the installation, authorship was construed as both automatic and tied to the television input that fed text into the machine.

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[64] Among other examples, John Cage's procedural foundations for recombinatory musical composition, the explorations of procedural constraints for text generation by the experimental literary collective Oulipo in the 1960s, and Sol Lewitt's constrained permutations of formal elements demonstrate this tradition across media in the twentieth century. Janet Zweig, “Ars Combinatoria: Mystical Systems, Procedural Art, and the Computer,” *Art Journal* 56, No. 3 (Autumn, 1997), 25-28.

[65] Tristan Tzara, "Dada Manifesto on Feeble Love and Bitter Love," in *The Dada Painters and Poets: An Anthology*, ed. Robert Motherwell and Jean Arp (Cambridge, Massachusetts: Harvard University Press, 1981), 92.

TV Poetry, responding to the perceptual confusion of the incipient information age, achieved a comparable confusion of generic forms in its display of poetry as a continuously generating stream of text, without a definitive conclusion, while also transforming television into something that compels a more active and enduring, rather than passive and fleeting, reception. This conversion of the transient messages of everyday life (mass media information—in Tzara's case, from the newspaper; in *TV Poetry*'s case, from the television) into poetry interrogated a conventional conception of poetry as a more enduring genre meaningful for not just its semantic content, but also its aesthetic form. At the same time, it rendered the fleeting nature of television more permanent. Walter Benjamin characterized the Dadaists' early twentieth century experiments as deploying "every imaginable waste product of language" as a means of destroying the aura of their produced artworks. Rather than providing a site for contemplation of the reader/viewer, these works "happened" to the viewer, impelling, as in film, a sense of the fleeting, of the constant forward movement of an era dominated by the mechanical.[66]

Attributed to Burroughs, the maxim "Language is a virus from outer space" was the heading under which *TV Poetry* and four other works appeared in the 1993 Ars Electronica catalogue.[67] Likely influenced by Adorno's post-war critique of television's latent totalitarianism, the phrase summarizes Burroughs's understanding of language as a medium of external control over subjective experience, oppressive by virtue of being communicable. Burroughs's cutup technique of literary and mechanical collage was meant to resist the subliminal manipulation of the individual by linguistic and imagistic conventions.[68] *TV Poetry*, along with the other works

[66] Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," 43.

[67] "Ars Electronica 1993," Ars Electronica Archive, accessed December 6, 2017, http://90.146.8.18/en/archives/festival_archive/festival_overview.asp?iPresentationYearFrom=1993.

[68] Heike Helfert, "Technological Constructions of Space–Time: Aspects of Perception," Medien Kunst Netz, February 15, 2007, http://www.mediaartnet.org/themes/overview_of_media_art/perception/scroll/.

listed under the heading, took the deconstruction of language within and by electronic media as a central focus.[69] However, *TV Poetry* interrogated the simplistic reading of language, and by extension, media as forcing an ultimately authoritarian reorganization of reality and meaning. Instead, it highlighted the role of mediation, construed as neither totally authoritarian, emancipatory, nor neutral, in the production of meaning.

TV Poetry's configuration of a complex and interpenetrating relationship between poetry, satellite television, and computing was designed to create a dynamic experience of image and text, though one that also reflects a sense of that experience as networked, globally transmissible, and collectively produced. Stan VanDerBeek's *Poemfields* works, a series of films using Bell Telephone Laboratories BEFLIX computer graphics programming language to animate poetry, were earlier efforts to combine text and image via computer to generate a new form of multimedia. In her 2015 study of VanDerBeek's experiments in Expanded Cinema, Gloria Sutton notes that VanDerBeek's combination of concrete poetry and early computer programming generated a novel type of presentation for text as dynamic and plastic.[70] VanDerBeek's *Poemfields* animations recontextualized poetry within both cinema and computing, creating an innovative experience of film in the process that did not just draw upon cinematic codes, but instead created more complex relationships between cinema, photography, programming, and poetry. This was a presentation of poetry as "a plastic experience," a "dynamic process" of integration reflective of the twentieth century viewer/reader's experience of images.[71]

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[69] Jochen Hendricks' *7 Viren*, Thomas Locher's *Satzbauplan*, Mario Merz's *Fibonacci Series, Quando*, and Susanna Morgenstern's *Further*. "Ars Electronica 1993."

[70] Gloria Sutton, *The Experience Machine: Stan VanDerBeek's Movie-Drome and Expanded Cinema* (Cambridge, MA: MIT Press, 2015), 164. In her discussion of *Poemfields*, Sutton draws on mid-century designer György Kepes's outlining of the "plastic experience" of images in the twentieth century in his treatise *The Vision of Language.*

[71] Ibid.

In his overview of "reading machines," Ulrike Küchler identifies the semiotic 'trouble' at the intersection of "man, machine, and language matters" provoked by writing programs such as text generators or automatic translation software, which return text following their own programmatic rules, but not necessarily those of human language.[72] Like the experimental text generators of the 1970s, '80s and '90s developed by Richard Bailey (*Computer Poems*, 1973) Scott Turner (*Minstrel*, 1996), and William Chamberlain and Thomas Etter (RACTER, 1983), among others, *TV Poetry* is concerned with the relationship between mechanical production of text and assignations of meaning. As an example of such trouble, Küchler cites Hans Magnus Enzenberger's 1974 "Einladung zu einem Poesie Automaten" (Directions for a Poetry Machine), an essay and set of programmatic instructions for a kind of poetic "vending machine." In the mid-'70s, Enzenberger was concerned with reconceiving the possibilities for electronic media, in the aftermath of what he saw as a countercultural rejection of new media.[73] While positing that correctly implemented rules for a poetry machine could produce the illusion of sense rather than simply a random jumble of words, Enzenberger also contended that mechanically produced poetry highlights the paradoxical relationship between machine and meaning. According to Enzenberger's structuralist approach to literature, the primary grammatical rules for text generation would not, on their own, be enough to produce meaningful poetry, which requires "a secondary understanding of language structure."[74] For Enzenberger, generation of meaning is beyond the capabilities of the mechanical.

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[72] Küchler, 43.

[73] Enzenberger, "Constituents of a Theory of Media."

[74] Küchler, 53; Enzenberger, "Einladung Zu Einem Poesie-Automaten," *Jacket Magazine*, 17 (June 2002), accessed December 17, 2017, http://jacketmagazine.com/17/enz-robot.html. Nevertheless, Enzenberger's concept was produced—built by an Italian company in 2000 and presented at a German poetry festival. "It looks like one of the displays used in airports to announce departures and arrivals. When an onlooker pushes a button, the lettered flaps

Rather than dismissing the potential for meaning in mechanically generated text due to its supposed lack of human authorial intent, contemporary media studies scholar Roberto Simanowski identifies other options a reader might choose in her quest to determine the meaning of a text output by a machine. The reader may admit that there is a potential for meaning in such texts regardless of authorship (a deconstructive approach, assuming a text carries meaning regardless of authorial intention), or determine meaning in chance (a constructivist approach, related to an understanding of meaning as created through a reader's interaction with a text).[75] Though viewers of *TV Poetry* were ostensibly meant to interpret the apparatus rather than or in addition to its resultant poetry, the question of meaning assignation to computer text illuminates what else was at stake in the installation: not only were the programmer/designer and the computer(s) the "authors" of the resultant text, but also the TV source material served a creative function. All accessible television content became part of the process of creation.

Decoding the Televisual

In its cutting up and reassembly of television text, *TV Poetry* mobilized critiques of television as a means of not just communication, but also manipulation. "How to Look at Television," Theodor Adorno's foundational critique of the medium in its first bloom, attributes the superimposition of meaning—the layering of latent totalitarian and manifest antitotalitarian

turn with a whirling noise and a six-line poem appears. At the next push of the button, this poem disappears forever and another one is produced." "Invitation to a Poetry Machine," *Jacket Magazine*, 17 (June 2002), accessed December 17, 2017, http://jacketmagazine.com/17/enz.html. The unwillingness to rely on the program as capable of producing potentially meaningful text is a theme throughout Enzenberger's work; in "Constituents of a Theory of Media," he identifies the motivating "short cuts" of conceptual art as "based on the banal and false conclusion that the development of the productive forces renders all work superfluous. With the same justification, one could leave a computer to its own devices on the assumption that a random generator will organize material production by itself," 122.

[75] Simanowski, 90, 99.

content—as inherent to television.[76] Unlike Benjamin on cinema or Brecht on radio, Adorno's critique of television was more pessimistic about the mechanisms by which television conditioned and unified audiences' reactions to an ultimately political end. Decades later, Jean Baudrillard expressed a similar pessimism about the emancipatory potential of media technology, instead positing the tactical, partial, and temporary transgression of codes of mass culture as the only realistic response to a repressive media apparatus.[77] By dismantling and reconstructing TV's messaging, *TV Poetry* acknowledged the radical politics of deconstructive media critique by exploding the semiotic codes by which the assumed latent and manifest content of TV programming functioned, reducing that content to an imaginary information. At the same time, the work did not rely solely on such critiques, but mapped to the more ambivalent readings of electronic media by Benjamin, Brecht, and Enzenberger by relying on electronic media as a means of facilitating unconventional communication and collaborative creation.

TV Poetry relied on later critiques of television that identified alternate interpretive possibilities for the medium's audiences. In subsequent examinations of TV messaging, Adorno's "how to look" gets changed to "how to read." Poststructuralist critiques including those of Umberto Eco, Stuart Hall, and Raymond Williams reconfigured the television viewing experience as one of active, multisensory interpretation of signs, analogous, though not identical, to the act of reading. Eco's 1965 "reading" of TV as a system of signs opens up the possibility that television is not just a tool and technique for control over an audience, but instead has the potential to generate texts that can be variously interpreted within its audience. He argues that a given TV program can be "analyzed as a message in relation to the intentions of the sender, the

[76] Theodor Adorno, "How to Look at Television," *The Quarterly of Film Radio and Television* 8, no. 3 (1954), 221.

[77] Jean Baudrillard, "Requiem for the Media," in *Video Culture: A Critical Investigation*, ed. John G. Hanhardt (Rochester, NY: Visual Studies Workshop Press, 1986), 124-146.

objective structure of the message, and the reactions of the addressee"—a process that could lead to entirely different but simultaneous determinations of meaning.[78] For Eco, "aberrant decoding…is the rule in mass media."[79] In a 1974 postscript to this analysis, he identified this semantic "gap" between the transmitted and received message as potentially liberating; one need not try to change a given message transmitted by TV, but instead attempt to "induce a different decoding of the message."[80] Similarly, Stuart Hall, in 1973, delineated the various ways that mass media messaging could be "encoded" (an act of transmission) and decoded (an act of reception). Eco's "gap" can be identified in the ways in which encoding and decoding are misaligned. Variant methods of decoding can be used as strategies against conventional, preferred, or dominant codes. Reading the signs of television oppositionally, a viewer may choose to decode the television message "in a globally contrary way," highlighting the "structural differences between broadcasters and audiences."[81] The "text noise" in *TV Poetry* resultant from the computer program's mistranslation of TV imagery as text, discussed in Chapter One, functions as an analogue for this "semantic gap"—an aberrant decoding that is the basis for the superimposition of new meaning, rather than the reception of intended meaning. In this way, the variance between a mechanical and a human decoding signaled *TV Poetry*'s radical undermining of television's hegemonic encoding.

[78] Eco, 3.

[79] Ibid., 5.

[80] Ibid., 19.

[81] Hall, 206.

CHAPTER THREE: CREATING SPACE

Two major changes to *TV Poetry* appeared in its second version (*TV Poetry 2/94*) at the 1994 Medienbiennale in Leipzig, an exhibition themed "Minima Media." First, the incorporation of modem-connected "field agencies" across Europe in place of the on-site satellite receivers and text-processing CPUs in *TV Poetry 1/93* raised specific political issues related to *TV Poetry*'s context within a more internationally-connected European media landscape. These issues include individuals' increased consumption and choice of information, advertisers' access to larger numbers of consumers, the blurring of national and cultural borders, and cultural homogenization as an effect of cultural and economic imperialism. Second, the incorporation of an additional access point to *TV Poetry*'s created text via MIT's MediaMOO—an online community—gestured towards the collectively-constructed virtual space as not only a communicative alternative to the one-way transmission of television, but also a means of subsuming and transforming mass media content.

These changes more explicitly engaged a context of increased communicational borderlessness and what seemed like a growing possibility for "new media" to reconfigure both power and spatial relations, a context linked to a range of contemporaneous circumstances: European media's commercialization and internationalization throughout the 1980s; the ignition of the internet age; the continuing transition to a globalized, postindustrial economy; and, more locally, the reunification of Germany. As discussed in the previous chapters, the implications of these circumstances manifested in *TV Poetry* as both potentially oppressive and potentially emancipatory. However, *TV Poetry 2/94*'s increased emphasis on creation and creativity by

virtue of its incorporation of a user-created virtual world, its simultaneous acknowledgement and collapsing of the distances between information transmission and reception, and its disruption of experiences of time and place (and real and virtual, text and image, watching and reading, labor and leisure, creation and consumption) reincorporated human communication and possibilities for community creation as necessary parts of its ambivalent treatment of television.[82]

***TV Poetry 2/94:* "Minima Media"**

The corridors of the gutted Buntgarnwerke textile mill were cold, damp, and dimly lit, with cratered walls, open ventilation shafts, and piles of disorderly cables.[83] The visually minimal *TV Poetry* installation at "Medienbiennale 1994: Minima Media" consisted of three monitors on stands facing away from the wall in a large white space with chipped and cracking beige tile floors—a former factory workshop [fig. 8]. The 37 on-site media and telecommunications installations of "Minima Media" took up only a third of the empty space in the 100,000-square-meter factory. As a result, viewers of the installations within the Buntgarnwerke faced no distractions from competing sound or screens of other artworks, instead encountering the piece in its relative isolation from other works, while roaming the cavernous factory with a floor plan for navigation.[84] The crumbling floors and walls, along with the scale of the place, contrasted with the deliberately minimal new media works, heightening a sense of industrial decay.

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[82] My argument regarding *TV Poetry*'s disruption and reconfiguration of experiences of time and place and community-creation aspects emerged via conversations with Cary Levine, and is inspired by Levine and Philip Glahn's study of similar attributes within earlier telecommunications works, *Electronic Café*, in "The Future is Present: *Electronic Café* and the Politics of Technological Fantasy" (forthcoming, Spring 2019; in the possession of the author), and *Satellite Arts*, in "Satellite Arts: A Television of Attractions".

[83] Marius Babias, "Ich war dabei," in Minima Media: Medienbiennale Leipzig; Handbuch zur Medienbiennale Leipzig, 184.

[84] Daniels, "Fore & Afterword to Minima Media," 9.

The central monitor, labeled "TV Poetry Versuchsanordnung 2/94" ("experimental set-up") was unchanged in style from its 1993 version: white text produced from processed television imagery scrolled horizontally across the top of a red screen. The monitor on the left rack displayed an animated flow chart ("Demoanimation") listing the functions of the program used to translate from television to poetry [fig. 11]. The presentation of the bare outlines of the program simultaneously made obvious the path of information manipulation, but also obscured the more complex workings of the computers, especially in comparison to the constantly flickering multiple screens of *TV Poetry 1/93*. The way the program functioned was viewable only in isolated snippets, through examination of the photographs of the field agencies on the wall behind the monitors.

The use of decentralized field agencies for text collection and processing marked a major change to *TV Poetry 2/94*. About every 15 minutes, the filtered text from each of the three agencies was sent via modems to Leipzig, where the central video monitor displayed the transmitted text "as an endless stream."[85] In contrast to the first iteration, the photographed field-agency computer screens of *TV Poetry's* second iteration provided clues to the different components of the program. Black and white photographs of each of the three field agencies hung on the wall behind and above the monitors, separated from the row of monitors by several feet of empty space. Each of the photos represented a different place, conveying a distinctive aesthetic and context. "Field Agency Christine Meierhofer Vienna" looked like a messy home office; "Field Agency V2_Organisation Rotterdam" had the appearance of an art gallery; and "Field Agency University Lüneburg" resembled a more professional or institutional office space. The acknowledgement of these contexts, situated in different locations in three different

[85] Sengmüller, *TV Poetry*, 10. It is unclear in the documentation whether this sending process was automated or not.

countries, identified the "origins" of the original television information. These agencies drew from satellite content and local cable channels. In contrast to *TV Poetry 1/93,* the use of the photographs situated the information: it came from "somewhere" and had a source. At the same time, the photographs highlighted the distance between the origins and destinations of mass media.

These self-referential images add yet another layer to the multiplied spaces in the installation: the space of the installation itself, in Leipzig; the three different spaces of the field agencies, represented in the photographs; and the virtual space of the MediaMOO. While the photographs of the field agencies bring a form of specificity to the distance that *TV Poetry*'s transmitted information has traveled, identifying an origin for the information they transmit (though obscuring the origins of the original television transmissions to the field agencies), they also draw attention to that distance. The distance connotes information's lack of tangibility and the incompleteness of technological connection. Information is never communicated completely, but always partially, always in translation, with some bits lost, and some added. As Daniels writes of *TV Poetry*, the field posts "do not exist as physically perceptible reality for the visitor."[86] They are only partial, fragmentary, moments in time—a photographic angle on a corner of a room.

V2_, an interdisciplinary center for art and media in Rotterdam (the Netherlands), provided an orderly, public location for the second field agency. In the middle photograph, books and catalogues, some of them about media and technology, are stacked on the shelves next to the computer running the program [fig. 12]. The computer sits on a stand on the left side of the image, its screen displaying the OCR function of the text-processing program. Within the

[86] "TV Poetry," in Minima Media: Medienbiennale Leipzig; Handbuch zur Medienbiennale Leipzig, 102.

graphical user interface (GUI) on the computer screen, visible to the viewer, glyphs detected in the black and white TV image are matched to the program's database of character templates. A monitor to the right displays the TV channel "Nederland 2," indicating the field agency's location.

The image on the right in the installation, from a computer center at the University of Lüneburg, shows an office setting with an uncluttered desk [fig. 13]. A TV monitor with a set-top box displays a satellite television channel on the right side of the desk. On the left, the PC screen shows a different function of the program than the one in Rotterdam. This GUI displays a converted black and white frame of selected TV imagery; the image on the computer has been binarized in preparation for the OCR function of the program shown on the Rotterdam agency's computer. To the left of the computer is the modem used to transmit processed text to Leipzig. A telephone rests on the windowsill; beyond it, a brick wall, trees, and a corner of a window in an adjacent building are visible, indications of the physical world beyond this designated site for information reception and transmission.

The leftmost photograph, of a desk in the Vienna apartment of German new media artist Christine Meierhofer, looks personalized and lived-in [fig. 14]. Boxes, papers, and cords are stashed casually below the desk, while floppy disks are stacked behind the computer—the iconography of a home office. On the right, a monitor shows the graphics for a Viennese teletext service. In the middle of the desk, a phone sits on top of a dialup modem. The GUI on the screen of the computer to the left shows yet a different component of the running text processing program. As in the Lüneburg photo, the large windows to the left frame the vague outlines of trees. An empty wooden desk chair with a decorative cloth for cushioning evokes a sense of the human and intimate, while also drawing attention to the absence of a human element in the other

images. Above the desk hang three photographs, mirroring the three photographs on the walls of the installation [fig. 15]. These pictures-inside-a-picture each show a room or a corner of a room with an artwork prominently displayed on the wall (a picture inside a picture inside a picture). The meta-images reference the cycling of media through media of the installation as a whole. It is possible that these images show other parts of the same apartment, a kitchen, a living room, a bedroom, but they could just as well be images from anywhere, echoing the confusion and layering of spaces inspired by *TV Poetry*'s transmission and collation of television.

In the installation, the monitor on the right provides a terminal for visitors to access the internet and connect to *TV Poetry*'s virtual room in the MediaMOO [fig. 9]. In doing so, they simultaneously inhabit both the real and virtual spaces of the installation, while television is translated once more and encountered within a textual, virtual space. As a text-based, online community, a MOO (Multi-user dungeon [MUD], Object Oriented) was a virtual world populated by user-defined and -created rooms and objects. Users communicated in real-time via messages that were visible to others within the same virtual room.[87] The internet thus provided yet another layer of mediation within the installation; the source of the text as television was further obscured, mass media information further absorbed by the computer. At the same time, the exhibition of the poetry within an online community was also an invitation to participate. Built into the MediaMOO's functionality was the opportunity for users to create their own personal spaces within the world, or to contribute and interact with objects within the virtual spaces.

[87] Amy Bruckman, "Finding One's Own Space in Cyberspace," *Technology Review* Vol. 99, Issue 1 (January 1996), 50.

For the virtual component of the installation, the processed text was sent in real time to the "UNITn-room" of MIT's MediaMOO via modem and the Internet, where users encountered a virtual "moving message electronic display." This display allowed users to see *TV Poetry* "from different points of view."[88] The entry of such text-based virtual spaces was conceptual as well as technological; the explanatory text for the UNITn room asked users wanting to enter the "dungeon" to imagine themselves as dematerialized in order to travel "inside a fiber optic cable," rematerializing at the other end in virtual space. The UNITn Virtual Gallery and Workspace put the user in "a large, high-ceilinged white room in an old warehouse building in Vienna," where an LED display was "hanging all across the room." They encountered a "Tour-Guide" who yawningly explained, "There is an 'e-xhibition' going on here." Visitors had the option to ask the "Tour-Guide" for more information, or to enter the command to "look MMED" and view the multimedia electronic display. People could see who else was in the room, as well as view and interact with any objects (in this case, a table, a tent, two noteboards, and a comment board). They could also interact with the robots "Victor" and "Nadine," which were programmed to respond conversationally to keywords.[89] In contrast to the real environment of the exhibition, the virtual environment had "a huge black electronic display on which TV Poetry is running in red letters. It is hanging in the middle of the room, almost filling it. The visitors cannot pass by without having to bend down or bumping their heads." Visitors could choose to sit on the sofa and see the text of TV poetry produced as a message in real-time in the virtual gallery [fig. 16].[90]

[88] Sengmüller, *TV Poetry*, 10-12.

[89] Description via Kevin Jepson, e-mail message to the author, March 11, 2018.

[90] The document represented by figure 16, MMED.txt, represents the last data contained by the MMED object, the most recent output "poetry" that would have been displayed to the user within the virtual exhibition in MediaMOO. Via Kevin Jepson, e-mail message to the author, March 11, 2018.

The electronic space of *TV Poetry* within the collectively-created fantasy "dungeon" was thus imagined as dominated by a giant, moving display, in contrast to the real, visually minimal installation, which was juxtaposed with the more tangibly dungeonesque environment of the decrepit former factory. The reincorporation of the human as an element mediating the transmission of information integrates *TV Poetry*'s critique of the repressive effects of television with the potential of newer media to transform and resist those effects.

Post-Berlin Wall European Media

The juxtaposition of real and virtual space also aligned with the juxtapositions at the heart of "Minima Media," which emerged from the reunification and confrontation of East and West Germany's cultural and economic systems after the fall of the Berlin Wall. Dieter Daniels, curator of "Minima Media," identified the fall of the Berlin Wall as the tectonic event that would define the '90s in a way comparable to the social and artistic aftershocks of France's May 1968 protests.[91] The installations of "Minima Media" were chosen with an eye to the interplay between the local and the global: Leipzig as a former East German city, a place whose residents did not own PCs, video cameras, or photocopiers before 1989, stood in relief against the increasing globality of art and media early in the internet age.[92] The exhibition also juxtaposed the aging industrial economy of a formerly socialist state with a burgeoning postindustrial global capitalism. Interactive media designer KP Ludwig John noted that a sense of "digital revolution" pervaded the "Minima Media" projects, a recognition that the "network" in concept and application was restructuring "the entire fabric of society, worldwide, through all social classes

[91] Daniels, "The Concept of Minima Media," in Minima Media: Medienbiennale Leipzig; Handbuch zur Medienbiennale Leipzig, 17.

[92] Daniels, "Fore and Afterword," 9.

and with no historic parallel," forcing a collision "with the interests of commerce and industry."[93] Upon what Daniels termed the "collision of two German cultures after 40 years of separation," "Minima Media" was determined to interrogate the binaries of old and new, east and west, local and global, political 'good' and 'bad', with the goal of revealing them as oversimplified.

As one of *Minima Media*'s seven projects that explicitly dealt with telecommunications, *TV Poetry 2/94* provoked a more complex understanding of the separation and conflation of political spaces both real and virtual. By collating text from multiple sites, the installation brings together the content created by geographically fragmented audiences (the decentralized field agencies). As discussed in Chapter One, European national media systems became more commercial and international in the 1980s and '90s. The power of multinational corporations and governing bodies, such as the European Commission (EC)—which predated and was a motivating, preparatory force for an economically and monetarily unified Western Europe—increased.[94] The easing of regulations over broadcasting across borders was part of a set of strategies deployed by advocates of a more economically integrated region.[95] At the same time, the increasing fragmentation of national media systems as a result of privatization meant that audiences could be segmented into "smaller, more homogeneous cultural and economic categories."[96] In the face of this segmentation, artworks like *TV Poetry* imagined new ways of generating community—as opposed to compelling attention—across space. The effect was not to

[93] HP Ludwig John, "Network Projects: A Continuation of Art with Different Means," in *Minima Media: Medienbiennale Leipzig; Handbuch zur Medienbiennale Leipzig*, 154.

[94] Siune and Truetzschler; Alison Harcourt, "The European Commission and Regulation of the Media Industry," *Cardozo Arts and Entertainment Law Journal* 16, 2 (1998), 425.

[95] Negrine and Papathanassopoulos, 6.

[96] Siune and Truetzschler, 3.

fragment the audience as a means of generating more a more customized set of recipients for delivery of advertisements, but to fragment and recompose the content of media itself while exhibiting the results of that recomposition within an experimental, collectively-imagined space.[97]

Sengmüller explained that he designed *TV Poetry* as a means of dealing "with the impossibility of absorbing all the available information on television myself" through the creation of "a system that will put this information to use in an unexpected way."[98] In an era of increasing choice, in which choice could and did generate its own form of paralysis, *TV Poetry* represented creation and construction as a response. In doing so, it used already existing telecommunications structures to facilitate the manipulation of media. The monetary outlay for decentralization, the installation description stresses, was minimal: "no expensive on-line connections are required, as the base computers establish contact with the central computer only at defined points in time and for the briefest duration possible."[99] In this way, *TV Poetry* did not drastically reimagine the apparatus of media itself, but instead manipulated existing structures in a manageable way, demonstrating the extent to which communications technologies could be repurposed to constructive and innovative ends.

[97] Felix Guattari, *Soft Subversions* (Los Angeles, CA: Semiotext(e), 2009), quoted in Anna Friz, "The Radio of the Future Redux: Rethinking Transmission through Experiments in Radio Art (dissertation, York University, Canada, 2011), 116. Guattari posited the development and proliferation of "minor media" systems, smaller, local, alternative modes of media, as a strategy to bring an end to both state and corporate media hegemony.

[98] Sengmüller, "Four Media Archaeological Artworks," 275.

[99] "TV Poetry," in Minima Media: Medienbiennale Leipzig; Handbuch zur Medienbiennale Leipzig, 102.

The MOO: Creating Virtual Space

In its other major change, the use of an online MOO, *TV Poetry 2/94* provided another means of putting "information to use in an unexpected way." The MIT MediaMOO was founded by Amy Bruckman, a researcher at the MIT Media Lab, in October of 1992. At its peak in 1996, the community had over 1000 media researchers from 33 countries (though the vast majority of users were from the US).[100] The MediaMOO was a type of MUD, or "multi-user dungeon," a structured form of engagement derived from multiplayer fantasy games of the late 1970s, of which Dungeons and Dragons is the most famous.[101] Bruckman conceived of the MediaMOO as a space not for games for teenagers, but a place to "bring together a group of people with a shared intellectual interest: the study of media."[102] The real-time interaction of users distinguished MUDs from their contemporary social networks, Bulletin Board Systems, where users browsed through messages that could have been created many hours or days before. *The Thing* was a contemporaneous BBS dedicated as a discussion space for artists exploring the use of newer telecommunications technologies as avenues for art; it originally emerged in 1991 in New York as a BBS, then spread to Cologne in 1992 and Vienna in 1993.[103] Though also solely text-based, early MUDs were focused on the creation and manipulation of a virtual world, rather than simply an online bulletin board. The MOO concept, a kind of software for MUDs, was based upon the principles of object-oriented programming (OOP). MOO allowed designated users to write programs to define spaces and objects. In OOP, the system is comprised of

[100] Bruckman and Resnick.

[101] Bruckman, "Finding One's Own Space in Cyberspace," 50.

[102] Ibid.

[103] "The Thing." Medien Kunst Netz. http://www.medienkunstnetz.de/works/the-thing/ (retrieved March 3, 2018); "History." The Thing. http://the.thing.net/about/about.html (retrieved March 3, 2018).

programmed objects, each assigned a set of properties and parameters by the programmer. These properties determined how users could manipulate or interact with the object.[104]

Within the MediaMOO, users formed subgroups and arranged different events: discussions, work sessions, symposia, poetry readings, and exhibitions. System developers provided a "basic infrastructure, as well as a few interesting and evocative objects and places, but almost all the building was left to the users."[105] Community members could interact and build at various levels, according to their various levels of programming naiveté. Advanced users constructed their own "offices" and other spaces populated with objects that community members could manipulate and interact with. On the more accessible end of construction were "contributory objects," which included statues of famous intellectual figures that users could "scribble on" (designed to promote discussion of their work), and project chalkboards to record ideas for new objects and places.[106] The purpose of these objects was both to build community and to give the user a sense of have achieved a level of competency in a computational environment.[107]

There were limits to this democratic frame, however. New members, who had to formally apply, typically joined by word of mouth, or were brought in when the community organized an online event. Unlike many other early MOOs, members were not anonymous, a rule formed as a

[104] Bruckman explains, "When a "child" object inherits from a "parent" object, the child acquires the characteristics of the parent. For example, it is possible to create an object that moves around simply by creating something which it inherits from "generic portable room." The child object can then be customized and new programs added to extend it. The generic portable room has been used to create a diverse collection of objects," Bruckman and Resnick.

[105] Ibid.

[106] Ibid.

[107] Ibid.

function of MediaMOO's status as a primarily professional community.[108] In keeping with the practices of other MOOs, users were organized into a hierarchy, with site administrators (termed "janitors" in the MediaMOO, and "Gods," "Wizards," or "Programmers" in other MOOs) at the top. Thus, certain inequities related to programming knowledge, rhetorical/typing skills, and professional identities were preserved within these early SNSs.[109] The presence of the "Tour-Guide" as a type of robotic docent, characterized as the slightly bored source of additional information for users within *TV Poetry*'s online exhibition, signaled the preservation of an art gallery/museum hierarchy within the experimental space of the MOO. Ironically, the preservation of such a hierarchy within the digital realm was also what made the virtual presentation and experience of *TV Poetry* more legible to viewers.

Despite such preserved asymmetries of power, in *TV Poetry,* this model of communication, of collaborative construction of an alternate space, was juxtaposed with the assumed passive reception of television. Bruckman notes that her contemporary context for interactivity, in the early '90s, was limited: most systems were designed by the engineers who constructed them, rather than by the users themselves. In contrast, MediaMOO, in the short time that it represented the cutting edge of social networking, provided a technology and community where users were the "creators and not merely consumers of virtual worlds."[110] The incorporation of the MOO into *TV Poetry*, then, emphasized not just an additional level of mediation, but another mode of creation rather than a product for consumption.

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[108] Bruckman, "Finding One's Own Space in Cyberspace," 51.

[109] Poster, 225.

[110] Ibid.; Bruckman and Carlos Jenson, "The Mystery of the Death of MediaMOO: Seven Years of Evolution of an Online Community," in *Building Virtual Communities*, ed. K. Ann Renninger and Wesley Shumar (Cambridge: Cambridge University Press), 28.

Media theorist Mark Ries's declaration, "Telecommunications art involves the creation of relationships without the production of concrete artworks," emphasizes the continuity between the systems art of the 1960s and an emergent network aesthetics in the succeeding decades.[111] The technologies enabling such networks—computing, satellite, and internet—could, by the 1990s, be combined by artists in ways that challenged simplistic narratives either demonizing or deifying one specific technology, such as television, according to its imagined potentials. If television disrupted of the textuality of a literate culture, as argued by Romanyshyn, *TV Poetry* not only re-textualized the televisual in order to reconfigure the one-way broadcast, but also made that newly textual world the product of collaborative, manipulable fantasy. This manipulability stood in contrast to the stark environs of the real-world exhibition space. In *TV Poetry*, the framing of consumption as creation through its presentation of translation from image to text and real to virtual suggests an opening up of interpretive and political possibility in the continuous layering of text, virtual space, and the iconic television image.

[111] Mark Ries, "Rendezvous: The Discovery of Pure Sociality in Early Net Art," 72.

APPENDIX: FIGURES

Figure 1

Figure 2

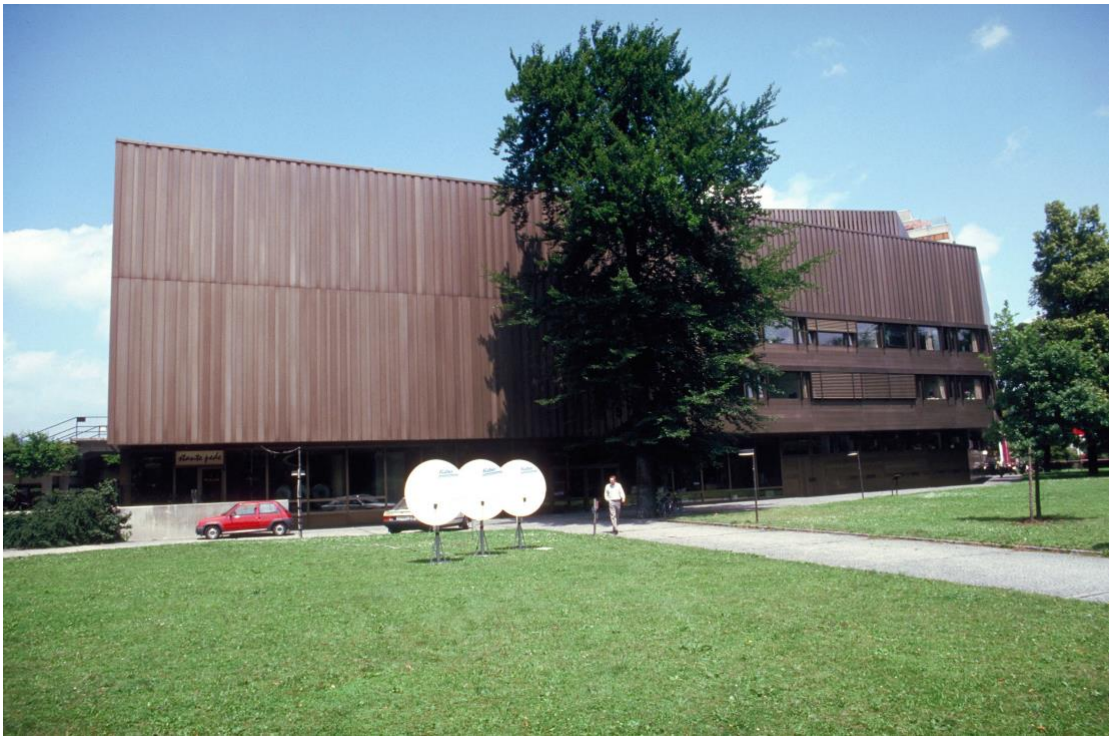

Figure 3

Figure 4

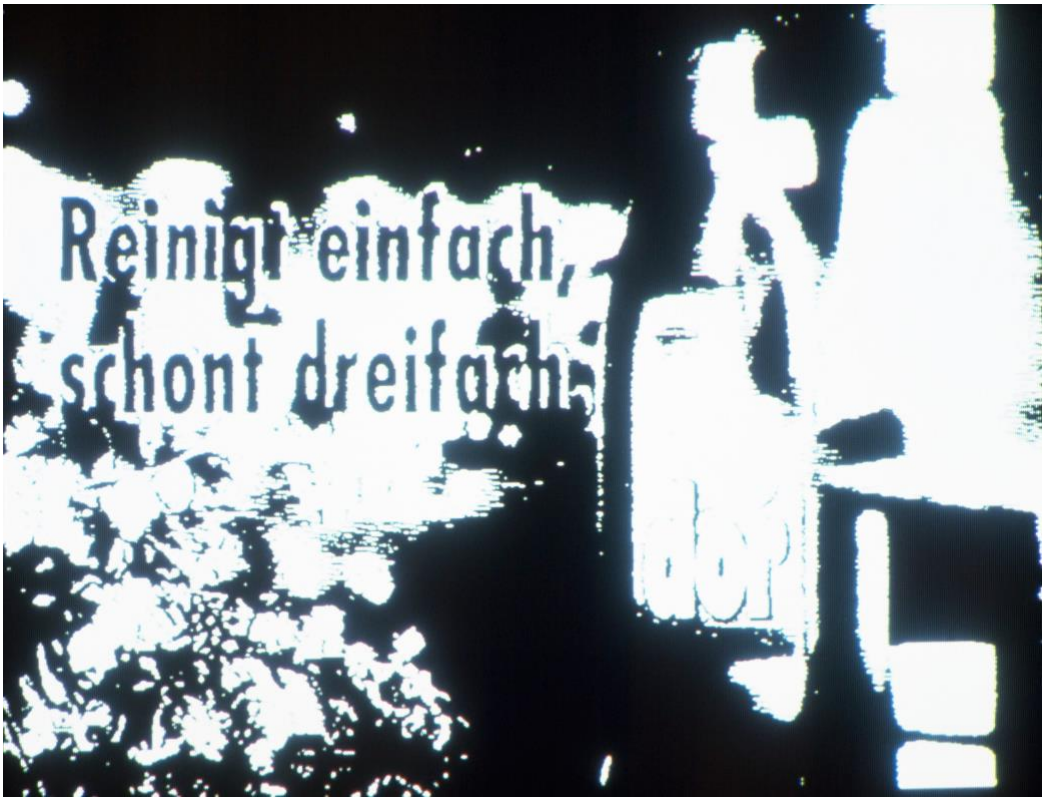

Figure 5

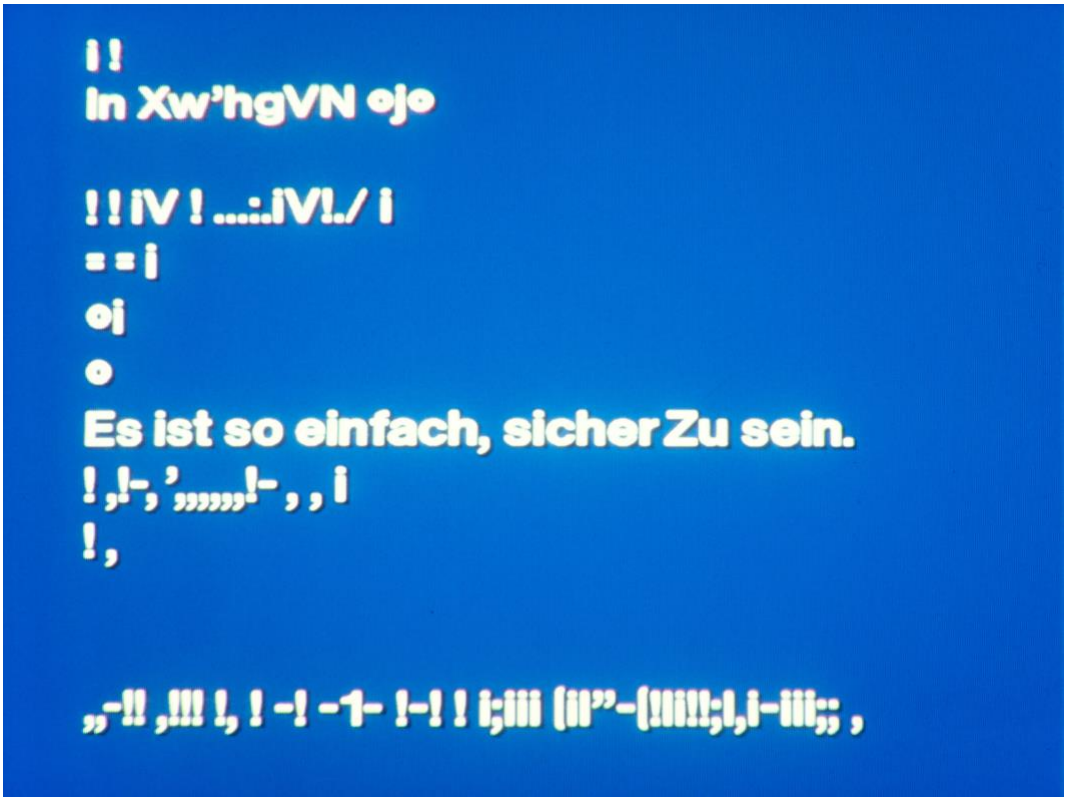

Figure 6

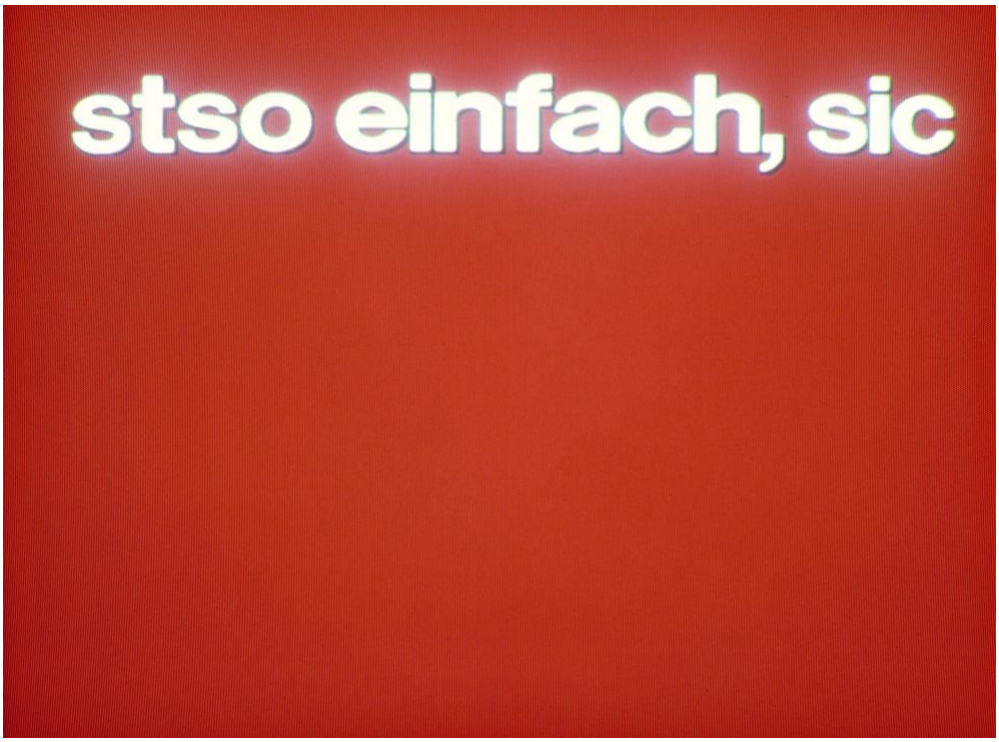

Figure 7

Figure 8


Command Prompt
F:\>telnet purple-crayon.media.mit.edu 8888
****
** Welcome to MediaMOO! **
****
PLEASE NOTE:
MediaMOO is a professional community, where people come to explore the future of media technology.
The operators of MediaMOO have provided the materials for the buildings of this community, but are not responsible for what is said or done in them. In particular, you must assume responsibility if you permit minors or others to access MediaMOO through your facilities. The statements and viewpoints expressed here are not necessarily those of the janitors, Michael Day, or Northern Illinois University, and those parties disclain any responsibility for them.
A note to guests: guests' connection site information is publicly readable, and included on all mail messages posted.
Type:
'connect <character-name> <password>' to connect to your character,
'connect Guest' to connect to a guest character,
'help @request' for information on how to get your own character,
'@who' just to see who's logged in right now,
'@quit' to disconnect, either now or later.
*** Connected ***
purple-crayon.media.mit.edu
You are almost to MediaMOO, inside a fiber optic cable. Type OUT to get to the Media Lab or COMMON to get to Curtis Common.
Obvious exits: out to The E&L Garden, common to Curtis Common, salon to The NI Salon, and down to media.mit.edu
recycle, Jazz, and Auerweck are here.
MediaMOO is a professional community for media researchers.
Please type "help purpose".
UnitN
Welcome to the HILUS/UNITn Virtual Gallery and Workspace!
You are standing in a large, high-ceilinged white room.
Along the south wall is a row of large windows facing out onto the old warehouse buildings of Vienna, Austria. The floor here is made of a dark well-trodden wood. A LED-Display is hanging all across the room.
There is an "e-xhibition" going on here.
For more information type "ask Tour-Guide" or "look MMED".
Obvious exits: enter to Green Tent, north to Forum, west to Buero, east to UNITn Bibliothek, and out to The E&L Garden
You see Green Tent, Tour-Guide, ein Tisch, MMED, Nadine, and Viktor here.
MMED
Das MMED ist eine riesige schwarze elektronische Anzeigetafel, auf der "TV Poetry" als rote Schrift laeuft.
Sie haengt mitten in Raum, den sie fast ausfuellt. Die Besucher koennen nicht an ihr vorbeigehen, ohne sich zu buecken, oder den Kopf zu stossen.
Als Alternative dazu bietet sich ein Sofa an, das vor dem Display steht.
Fuer mehr Information ueber "TV Poetry" tippen Sie "ask Tour-Guide".
The MMED is a huge black electronic display on which TV Poetry is running in red letters. It is hanging in the middle of the room, almost filling it.
The visitors cannot pass by without having to bend down or bumping their heads. As an alternative to that they can also sit on the sofa in front of the display.
for more information about "TV Poetry" type "ask Tour-Guide".
Type 'watch MMED' to follow the presentation...
Figure 9

Er raeuspert sich und faengt an mit nasalem und leicht
gelangweiltem Tonfall zu erzaehlen, was er schon tausendmal gesagt hat.

He clears his throat and starts telling, what he has been telling
a thousand times before with a nasal and slightly bored voice.

e-xhibition Teil 2: \"TV POETRY\"

\"TV-POETRY\"
Gebhard Sengmueller, Wien/A
28.10.1994 - 10.11.1994 fuer die Medienbiennale Leipzig
im MediaMOO/Internet
Auenstellen:
Rechenzentrum der Universitaet Lueneburg, Lueneburg/D
V2, Rotterdam/NL
Wohnung Christine Meierhofer, Wien/A

Die drei Computer der Aussenstellen zappen 24 Stunden taeglich
durch verschiedene Fernsehkanaele. Mittels OCR
werden die in den Programmen vorkommenden Worte und Buchstaben
herausgefiltert. Die dadurch entstehenden Textfragmente werden vom
Computer teilweise korrigiert und ergaenzt.

Ueber Modem werden die drei fertigen Texte der Aussenstellen in einen
Zentralcomputer uebertragen, der auf der Medienbiennale Leipzig steht.
Dort werden sie zu einem Text gemischt, und in den HILUS/Unitn Raum
im MediaMOO geschickt. Diese \"TV Poetry\" kann hier auf einem
\"Moving Message Electronic Display\" (watch MMED) abgerufen werden.

e-xhibition

Innerhalb dieser Ausstellungsreihe werden Kuenstler, die vorwiegend mit
Text arbeiten, eingeladen, ein Projekt fuer den Unitn Raum im MIT zu
entwerfen.
Die Intention ist, sich mit einer Situation auseinanderzusetzen, in der die
Mittel sehr reduziert sind: das Material ist Text, der nicht gelayoutet
werden kann, das Publikum und der Zugang zum Kunstwerk sind ganz
anders als gewoehnlich.
Teil 1 fand vom 9.3.1994 bis 14.3.1994 statt und war ein Projekt von
Dellbruegge/de Moll, Berlin/D. Mitschriften sind erhaeltlich bei HILUS.

e-xhibition ist ein Projekt von HILUS und Literatur+Medien
Informationen:
HILUS - intermediale Projektforschung
Kleine Neugasse 12/3
A-1040 Wien
Tel: +43 1 5814490, Fax: +43 1 5814493
e-mail: R5311GAB@AWIUNI11.EDVZ.UNIVIE.AC.AT

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TV-POETRY
Gebhard Sengmueller, Wien/A
28.10.1994 - 10.11.1994 for Medienbiennale Leipzig
Branches:
Rechenzentrum of the University of Lueneburg/D
V2, Rotterdam/NL
Apartment of Christine Meierhofer, Vienna/A

24 hours a day the three computers at the branches zap through the
different TV channels. The words and letters occuring in these programs
are filtered via OCR. The so generated texts get corrected and
completed by the computer.
The three finished texts of the branches are sent to the central computer
at the Medienbiennale Leipzig/D via modem. There they become mixed
to one Text, which is transmitted to the Unitn Room at the MediaMOO.
This \"TV POETRY\" can be read on a Moving Message Electronic
Display (\"watch MMED\")

e-xhibition
In this series of exhibitions, artists, who mainly deal with text, are invited
to design projects for the Unitn Room at the MediaMOO.
The intention is to deal with a situation, where only reduced possibilities
for expression exist. The material is text, which cannot be laid out, the
visitors and the artwork are different than usual.
Part 1 took place from march 9th to march 14th, 1994 and was a
project by Delbruegge/de Moll, Berlin/D. Scripts are available at HILUS.

e-xhibition is a project by HILUS and Literature+Media.
Informations:
HILUS intermedia Project Research
Kleine Neugasse 12/3
A - 1040 Vienna
Austria, Europe
phone: +43 1 5814490, fax: +43 1 5814493
e-mail: R5311GAB@AWIUNI11.EDVZ.UNIVIE.AC.AT

Literature+Media
Seidengasse 13
A-1070 Vienna
Austria, Europe
phone: +43 1 526 20 44 41, fax: +43 1 526204430",
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Figure 10

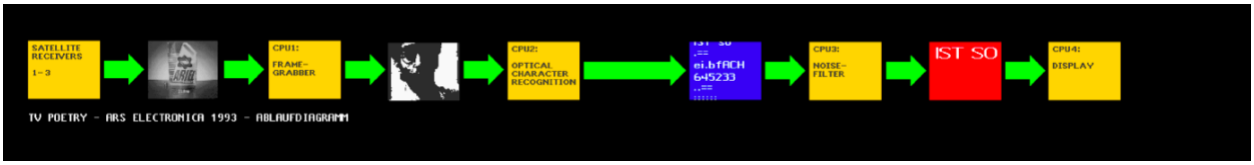

Figure 11

Figure 12

Figure 13

Figure 14


Figure 15

```
"CNETCCi TlEECTR USi HiMi GIOORtMl SgSMN"
"MA ClOSl AALINVSMAItlliUISVAN MuAMe lItR"
"ADlO VlDEO HUISHOUELlJlEAPPARATN TAPlJT "
"SNICORDlJNEN DAMSIHERENIllNDERlLEDlNC SL"
"AAPMUSELNGN UlTlGRlNC BSZMAARl MAam me A"
"anogsonlik uetellen iAi fLCa taDtM gLCul"
"r DACH ADl iJOHN LEDDY ELISABETH MAA iLE"
"r DACH ADl iJOHN LEDDY ELISABETH MAA iLE"
"lil ilai iotel Dawe GolVege FotbAl HORO0"
"R wgscwY klA itIVMZC speIMontauei iMet o"
"oingen kooues weuiveen net onsruio NMoo "
"GuM Moo ANV woRhoesoch RoYedo aAl Dlowlb"
"le ldlejniVycet ilHet was geen akeIandoa"
"ls allenaal daGhtill TllIllIl llwe sAi z"
"Yi KUNiA "
"oli Groot geworden door klein bliven Vg"
"aeiJni klessando CfMknniet PellikaVn YFl"
"l oMMGYnIiUliYll Mlialiwuigiulv OPlOBlOB"
"uiMiaild daa lQhlAiml CNETCE Ciu YUHlnn "
"XUNTlXl moeten lunchennTMTfT wiRt liF cN"
"EirrlZ LME is UNT liDe kinden die agenun"
"den pachioik ZRPOuRAMlli lilAAi HOOVLE l"
"er etgei RNe KillIS VellIulCNETCCE rcA M"
"UM tia MMCNETCCT moet net uleen Zokrg ue"
"rkeerue uee Vlai iAErl CNeTCC RLUlis uTD"
"Hi uTDuTMT EUFO luisfeM UilkVEl naa esot"
"t PUkieui Mirhiel SrhooenRgie Fank Seenh"
"oyenlos yan Gele lianGsvnt isaralis urie"
"f over er iets mis lJa Meet wat afspreve"
"liJij qeeft ons centjes ONtN lODltl EUOF"
"Meb een keer DntrnDetHi is slecMt uiRKl"
"t ilue AllRu EURuFu illuNerl iev huis Sw"
"iaChBnni TLPOYT iVATIGf PAlGf ostX eurFO"
"bgi luiw MlvijvKom mee wacMten onl IMp u"
"Moet iglaliu eitl eVi iGolA elr Tina sei"
"bi tUmtftt woLeHD PANAz yNlilmlnllIiwMil"
"lNeln ilikiNu lmOa luisel Aaaw AEa COttO"
" OKltFVltFRr VMlSvA INVtNTIONw UKgl osuM"
"l iwvo ooXel AiRLtU ftDAtH tADtX iVliA k"
"wooAtoen ijsiIVivli lliAliEnl all Nep As"
"lil lililIlllllllllllllllEl llES Telesh"
"p SfBdsfepBglnB NEri Thuis winYelen mef "
"SfBdsfe aBo SewiAChBnnel cnycLE TlE is t"
```

Figure 16

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