ELECTRONIC BACKTALK

The Art of Interactive Video

One of Nam June Paik's *Participation TV* sculptures, *Magnet TV* (1965), graphically and metaphorically demonstrates the possibility of interfering with standard television signals.

Photo: © Peter Moore, courtesy Whitney Museum of American Art

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Interactive technologies pervade our daily life. From ordinary telephones, automated banking machines, home shopping on cable TV, video arcade games, and the "point-of-purchase" information and sales kiosks popping up in airports and shopping malls—all these systems employ technologies that facilitate the exchange of information. The most sophisticated interactive technology to date is the interactive videodisc. A marriage of computer and video technologies, interactive videodiscs have the capacity to store and retrieve large quantities of high-quality still and moving images and sound. Film, videotape, slide transparencies, and audio can all be transferred, mastered, and pressed onto a single disc. Unlike videotape, videodiscs provide random access to this data—one can "jump" in a fraction of a second from one place to another in the program, eliminating the necessity of reversing and fast-forwarding. What's more, one can "park" on a still image for an indefinite amount of time without damaging the disc or the machine. Since the discs are made of aluminum coated with polyvinylchloride, they are much sturdier than film or tape.

Perhaps the most attractive feature of videodisc technology is the ability to control highly realistic film, video, or computer graphic renderings in real time. For instance, a well-known early interactive videodisc, *The Aspen Project* created by the Massachusetts Institute of Technology's Media Lab in 1979, simulated every street, intersection, and building in Aspen, Colorado, so that one could "drive" through the city taking various routes. No doubt, this capability is what made interactive videodisc so appealing to NASA and the U.S. military, which originally developed it for flight simulators and training purposes. Prototypes of the new Advanced Tactical Fighters have been tested in simulators which replicate the sights, sounds, and feel of aerial combat. While older simulators could not provide realistic scenery, the newer ones can create highly detailed images of the surrounding landscape. According to an article by Andrea Adelson in the *New York Times*,

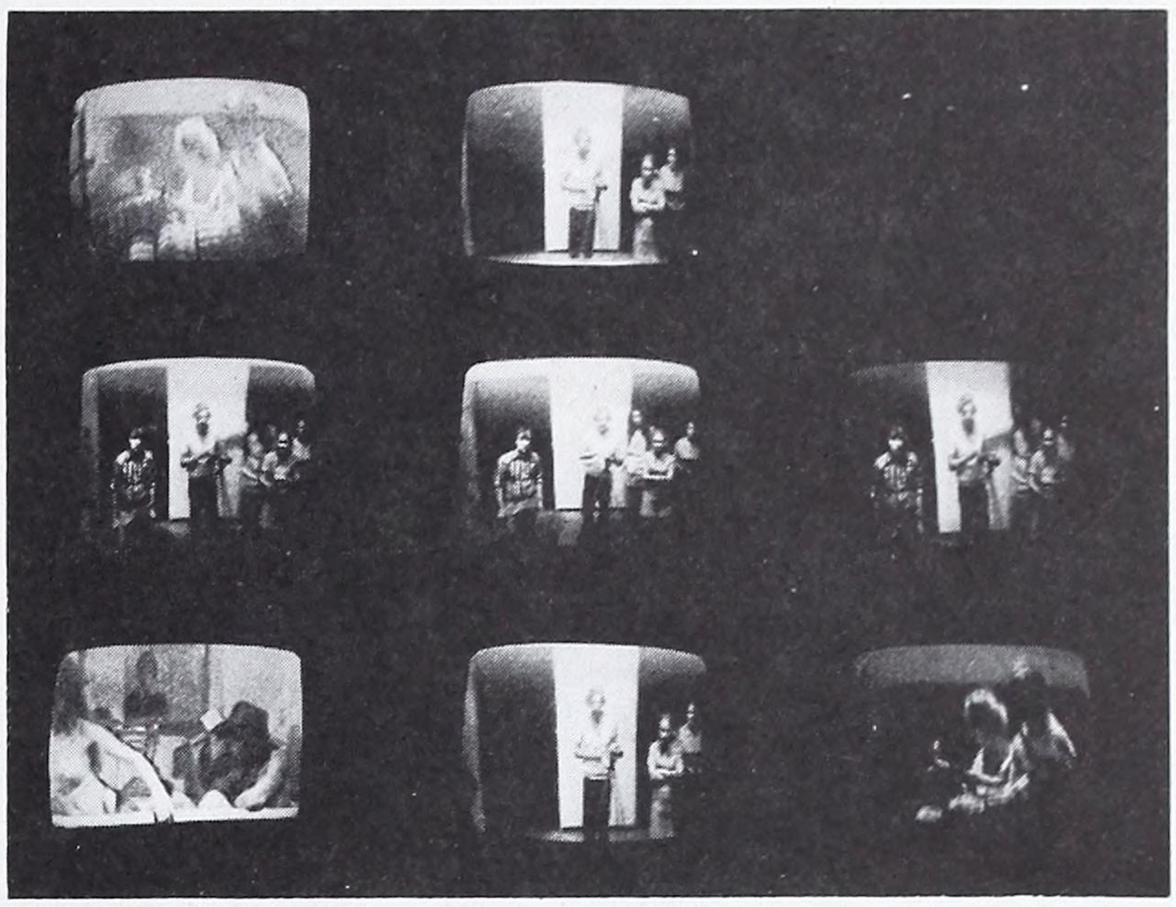
> Two computers create the external world, including enemy planes and missiles. One draws the outline of these objects, based in part on real-world data obtained from classified sources. The other computer controls the panorama and adds texture, such as pock marks in asphalt or the bolt-pattern of an aircraft wing.[1]

As Adelson points out, simulators, which cost about $20-million, are cheap compared to the estimated total cost (not including overruns) of $46.9-billion for the 750 jet fighters the Air Force plans to build.

Consumer and industrial spin-offs of videodisc systems were introduced in the early 1980s amid much hoopla. While consumer sales of videodisc

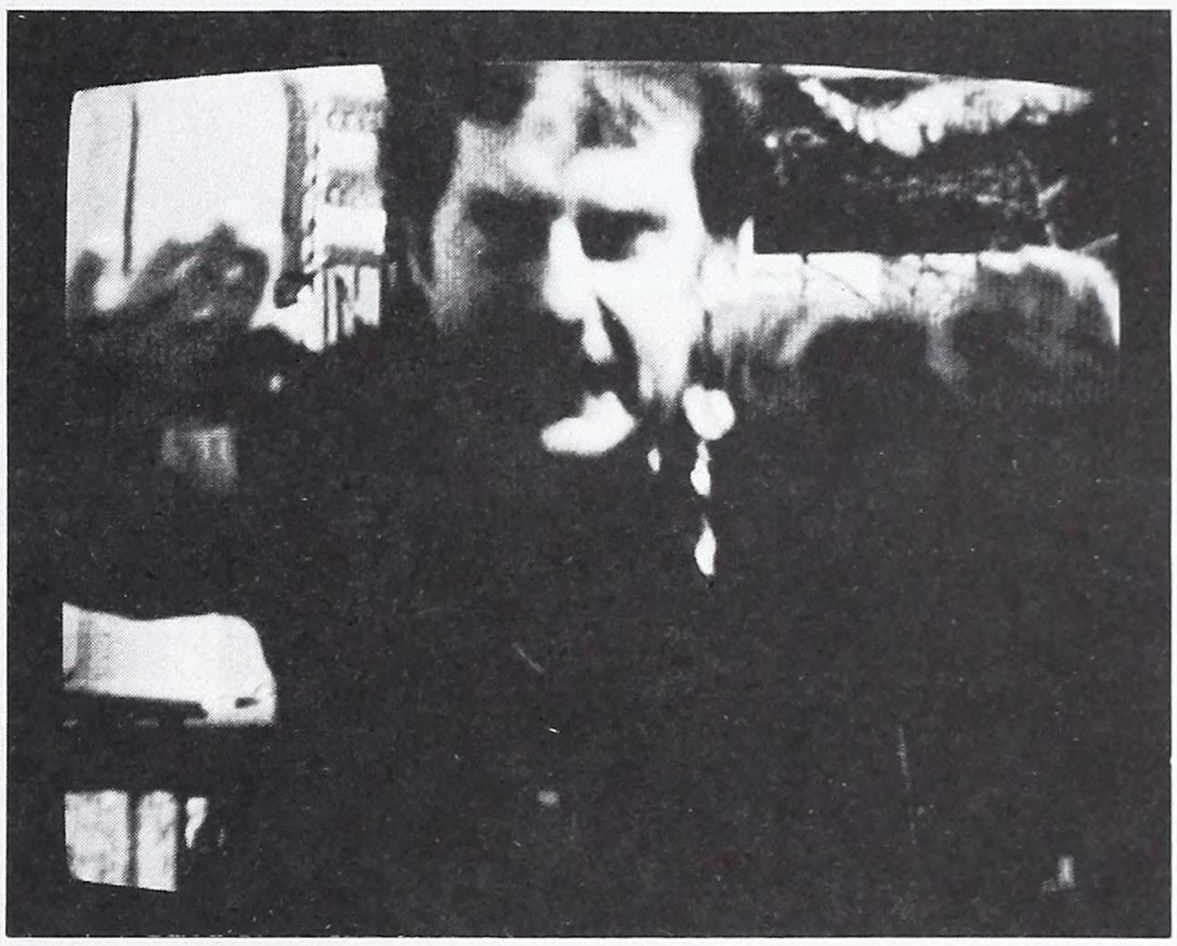
Wipe Cycle (1969), by Frank Gillette and Ira Schneider, was a gallery installation consisting of closed-cirucit cameras and monitors that involved gallery visitors as both audience and participants.

Courtesy Raindance Foundation



Douglas Davis in his *Double Entendre* (1981), a radio/television/performance work that incorporated a satellite hook-up between the Whitney Museum in New York City and the Centre Georges Pompidou in Paris.

Courtesy Whitney Museum of American Art



Frames from Wendy Clarke's *The Love Tapes* (1977-78), a compilation of three-minute soliloquies on love by over 800 individuals.

Courtesy Museum of Modern Art

players fell far short of industry predictions, the introduction of disc-based video games, such as *Dragon's Lair* in 1983, gave the sagging business a shot in the arm. The enormous success of *Dragon's Lair*, which featured recognizable characters, settings, and sound effects, was due to its realism.[2] But it's only since 1986, when IBM began marketing InfoWindow, an interactive training system the company had developed for its own employees, that interactive videodisc has become a growth industry.[3]

From 1986 to 1987, analysts predicted a 35 to 45 percent growth in the number of interactive videodisc systems, a rate that will probably increase. Although not yet as indispensable as the personal computer or the copy machine, interactive videodisc systems are making inroads into industrial and corporate sales and training programs. Both General Motors and Chrysler have interactive "courseware" on hazardous chemicals, a result of an Occupational Safety and Health Administration regulation requiring training for employees on workplace hazards. This mandate, along with IBM's entry into the market, is regarded as one of the key factors in the recent surge of interest in interactive courses: it's considered a relatively cheap and efficient method.

In the sales arena, economy and efficiency are also spurring the use of videodisc. In 1984, Allegheny International, which owns the Sunbeam and Oster product lines, set up Infosource, an interactive kiosk intended to "take the consumer's eye off the price tag, and instead focus on unique product features, high-quality performance and attractive and efficient design." The other advantage, as Allegheny saw it, was the ability to present a consistent message about a product. As Diane Kolyer noted in an article in *Videography*, "Infosource never gets sick, never gets up on the wrong side of the bed, never fumbles or stutters."[4]These applications of interactive videodisc share a straightforward—and technocratic—conception of interactivity. Information can be delivered (and money exchanged) in a consistent manner, and at the pace of the individual user. Information is rationalized, eliminating the individual quirks of salespeople and teachers—and, in all likelihood, their jobs.

A slightly different, although no less technocratic, conception of interactivity informs debates among politicians and social scientists about interactive communication. Much has been made of the potential for interactive technology to revolutionize communication, thereby bolstering democracy. And most discussions of interactivity assume that interactivity means participation, choice, and, above all, communication. However, in *Media for Interactive Communication* Rudy Bretz distinguishes between genuinely interactive systems, in which "each of two (or more) communicants responds to the other" and quasi-interactive systems, which involve "data response" or *Gong Show*-type interactions.[5] In the latter, mass audiences are given a menu of options that appear on their TV screen. The options range from choices about the resolution of a TV drama plot to public opinion polls. This distinction informs a comparison between the so-called "Reading experiment" in interactive television for senior citizens in Reading, Pennsylvania, and Warner-Amex's highly publicized QUBE system in Columbus, Ohio. These two systems are prime examples of Bretz' two forms of

In their "public interactive sculpture" *Hole in Space* (1980), Kit Galloway and Sherrie Rabinowitz used a satellite link between New York City and Los Angeles to establish communications between people in the street in both cities.

Courtesy Museum of Modern Art

Grahame Weinbren and Roberta Friedman's *The Erl King* installation at the Whitney Museum's 1987 Biennial exhibition.

Courtesy artists Whitney Museum of American Art and artists (far right)

interactivity and the attendant successes and failures.

Interactive television was introduced in Reading in 1976 as one of three pilot projects funded by the National Science Foundation.[6] Installation of the system followed a period of intense scrutiny of community relations, in which numerous studies and reports stressed the potential public benefit to be gained from two-way noncommercial services such as interactive educational TV and direct citizen feedback on local political issues.[7] The project was developed by a community-based consortium working with a group from the Alternate Media Center at New York University led by Red Burns. AMC, founded by George Stoney, was a hotbed of "interactivity" in the form of community video and public access cable TV. AMC often made tapes in New York City that allowed community members to speak about particular issues. Since few people had cable TV, Stoney *et al.* would play the tapes back in barber shops, on stoops, or from the back of a car in order to spark discussion and/or action.[8]

Although the original purpose of the Reading project was to determine if interactive TV could effectively and economically deliver social service information, the system took hold and is still running. Senior citizens congregate at three community centers, interconnected for two-way transmission with City Hall and the local Social Security office. Cameras are set up in each location, and a split screen shows the speakers in two locations participating in discussions. Their interactions, which occur for the most part in talk-show formats, provided the programming for the cable system's interactive channel. The success of the Reading system resulted from a number of factors, but the most important was the high degree of community involvement in the system's design from the beginning, as well as its ability to facilitate actual social interaction.

Not so Warner-Amex's QUBE system in Columbus, which provided the means for transmitting data from cable subscribers' homes to the cable facility but never entailed any dialogue. A typical QUBE interaction involved a multiple-choice question on an issue, such as whether a new shopping mall should be built. When it was introduced in 1981, QUBE was touted as a "politically powerful ally of democracy." But, as Jean Bethke Elshtain argued, QUBE is based not on democratic principles, which involve the active participation of citizens in debate and deliberation, but on a plebiscite system that merely registers public opinion.

> Plebiscitism is compatible with authoritarian politics carried out under the guise of, or with the connivance of, majority opinion. That opinion can be registered by easily manipulated, ritualistic plebiscites, so there is no need for debate on substantive questions.[9]

Rather than facilitating discussion, this brand of interactive television provides a range of predetermined answers or opinions. The illusion of choice precludes debate and dissent from a carefully inscribed set of responses. Elshtain concludes, "The interactive shell game cons us into believing we are participating when we are really simply performing as the responding 'end' of a prefabricated system of external stimuli."[10]

While Stoney and other community video activists such as Jon Alpert and Keiko Tsuno, working in New York City's Chinatown, were making and showing street tapes, many of their artist colleagues were engaged with other concepts of interactivity. Rooted in the art and theater of the late 1950s and early sixties, artists articulated interactivity in terms of audience participation. Allan Kaprow, along with Claes Oldenburg, Edward Kienholz, Red Grooms, and others, were making "Environments"—room-sized constructions made of street junk and everyday objects—in response to what they saw as the limits of Abstract Expressionism. Kaprow, in particular, began to think about incorporating gallery visitors into these projects.

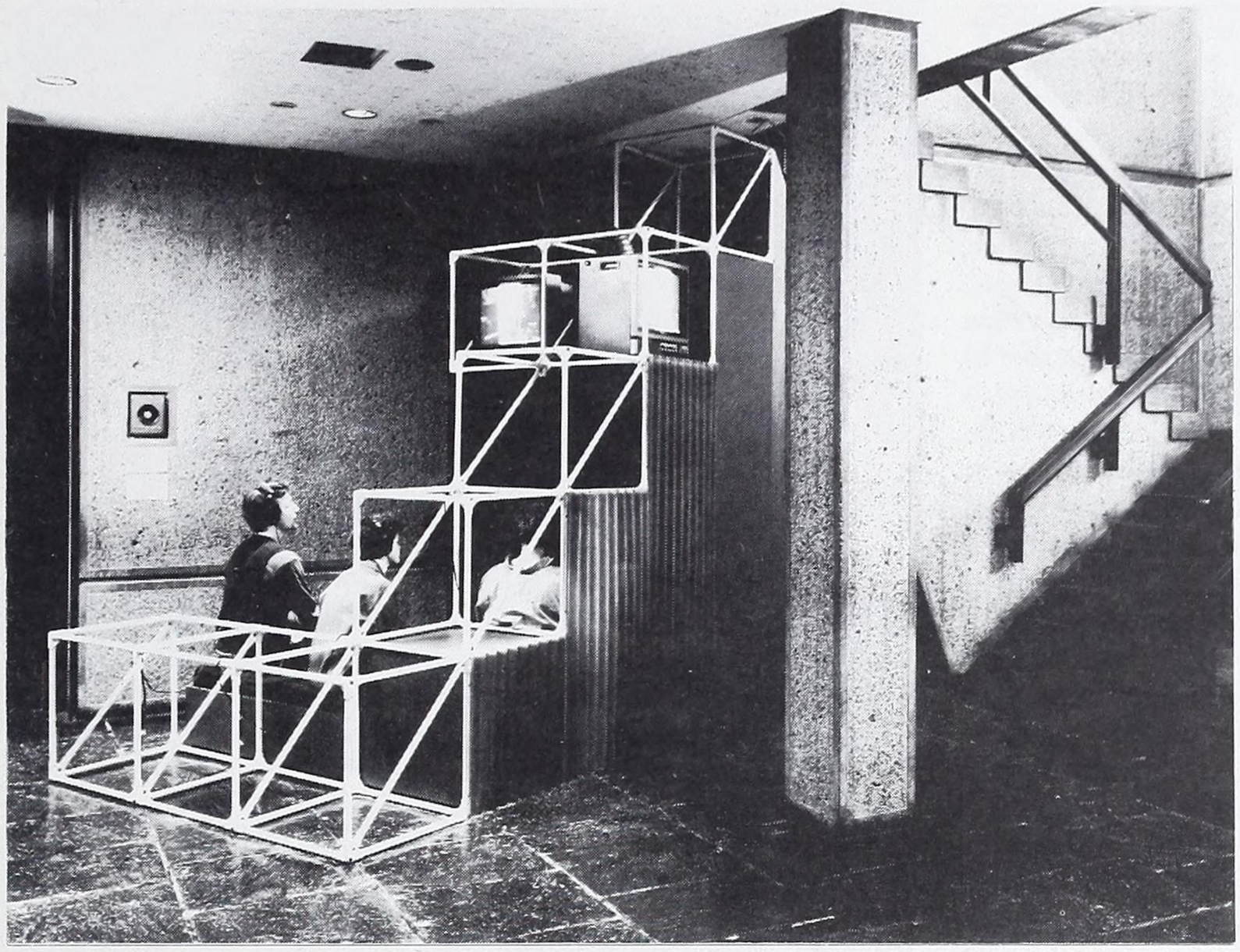
> I immediately saw that every visitor to the Environment was part of it. I had not really thought of it before. And so I gave him [*sic*] occupations like moving something, turning switches on—just a few things. Increasingly during 1957 and 1958, this suggested a more "scored" responsibility for that visitor. I offered him more and more to do until there developed the Happening.[11]

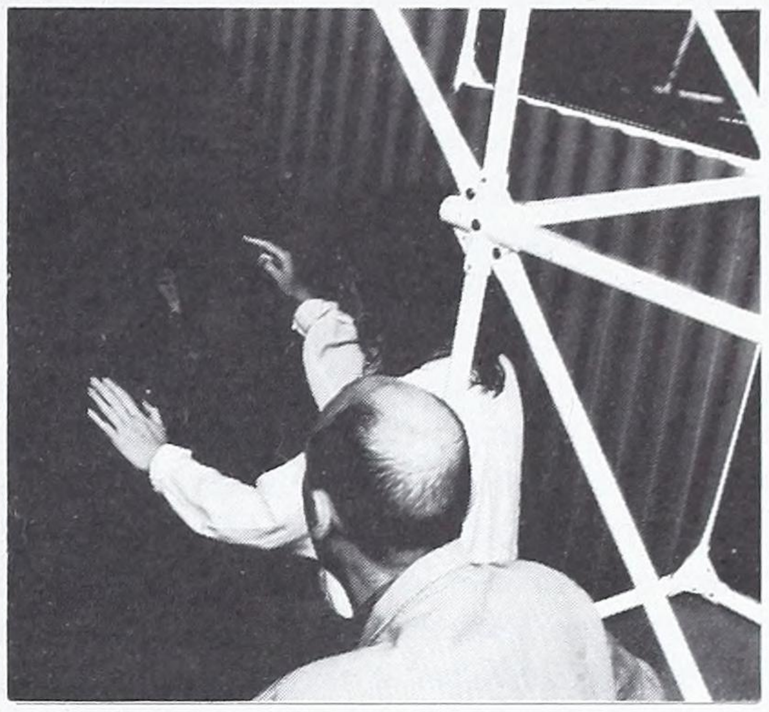
In Happenings, a tightly scripted series of actions taken from everyday activities were performed—not acted—sometimes simultaneously by various artist friends enlisted by Kaprow. He never intended that the term Happening would be used as a generic label but merely as a way to describe his gallery events without calling them "theater pieces" or "performances." The term stuck, however, after Kaprow presented *18 Happenings in 6 Parts* in 1959 at the Reuben Gallery in New York. In this work visitors to the gallery moved through three rooms Kaprow had constructed. In *Total Art* Adrian Henri describes the evolution of Kaprow's Happenings from

> ritualized theater pieces for a static audience to group rituals, performed mainly in an outdoor environment.... Two types of work emerged, one involving a more or less static audience, the other a walk-around environment.... *Words*, at the Smolin Gallery in 1962, was an arrangement of audience participation devices: rolls of words to move, words on cards hung on strings, words to pin up and rubberstamps to make phrases with.[12]

The breakdown of the distinction between audience and performer reached its extreme in activities staged by a group of artists who called themselves Fluxus. Henri makes a distinction between Happenings and Fluxus events: while Fluxus activities "were chance-generated random-performed pieces," Happenings were "tightly programmed (at least in the early years) environmental works, generally of much longer, and defined duration."[13] Fluxus artists—George Maciunas, Lamonte Young, Dick Higgins, Alison Knowles, George Brecht, Robert Filiou, Nam June Paik, and others—were inspired by the anarchistic precedents of Dada and John Cage's theories about the aesthetic potential of the commonplace and his use of chance operations to generate performances and events. Fluxus was an art of transgression, aimed not only at breaking down the boundary between audience and performer but at eliminating the distinction between art and life in a celebration of the everyday. For instance, in Dick Higgins' *Winter Carol* (1959) the concept of "audience" was eliminated altogether. As Barbara Haskell observed, "No one was invited to 'watch,' a format drastically different from that of most Happenings, in which audiences were participatory if only by virtue of their cramped proximity to the performers."[14]

Audience participation was in the air, but the impact of a number of





theorists dealing with communications, cybernetics, and technology—including those who became household names like Buckminster Fuller, Alvin Toffler, Norbert Wiener, and Marshall McLuhan—gave it a new twist. People working in the new "medium" of video were drawn to McLuhan's and Wiener's ideas in particular. In McLuhan's theory, modern life is characterized by the simultaneous reception of vast amounts of information in the form of sense stimuli: sight, smell, hearing, touch, and taste. This bombardment was compounded, according to Toffler's theory of "future shock," by the impression that people's sense of the rate of change was undergoing a profound escalation, making reality seem "speeded up." Accordingly, a new kind of perception was required so that these stimuli could be apprehended directly through the senses. The emphasis on perception promulgated by this kind of pop theory was complemented by a conception of the artist as communicator. For instance, an article entitled "TV: The Next Medium" published in *Art in America* in 1969 described the artist as a person "who can experience directly through his [*sic*] senses. His effectiveness as an artist can be judged by how well he communicates his perceptions."[15] Just as technology provided the metaphors for this brand of art criticism, technology was proposed as a key component of the communications process, providing the means to create a new global consciousness—McLuhan's proverbial "global village."

One of the artists who reiterated such arguments was Nam June Paik, who extended his earlier Fluxus activities into video. Between 1963 and 1971 he constructed a series of video sculptures called *Participation TV*. In one of these works, *Magnet TV* (1965), he placed a large magnet on top of a TV set, employing the electromagnetic force exerted by the magnet to distort the incoming broadcast TV signal. In another piece, a microphone was attached to a TV. Blowing, clapping, singing, or making other sounds created colorful permutations of the image. During the same period, Joe Weintraub explored similar ideas in his *AC/TV (Audio Controlled Television)* (1969), but without the interactive aspect. In this piece, the brightness of the TV image was controlled by the volume of the music and the color controlled by its pitch.

Paik's participatory sculptures were only minimally interactive, but the video environments developed by his contemporaries, which employed live, closed-circuit video, were more closely linked to the idea of creating sensoria that somehow would change the viewer/participant's perception. John Margolies, the author who proclaimed "TV: The Next Medium," believed that this work represented a

> new concept of art and entertainment experience...the key to the new experience being the provision of options for the spectator's attention. The experience affirms the concepts of participation, simultaneity, spontaneity, and the accidental. Television is a prime example of this new experience with its option of many channels to be viewed simultaneously with a number of receivers or sequentially by changing the channels.[16]

Examples of this kind of work abounded in the late sixties. Les Levine's *Iris* (1968), commissioned by a Philadelphia couple for their home, consisted of three video cameras which would "see" the spectator from three different vantage points. This "giant cybernetic eye," as Levine called it, would then display the images on a bank of six monitors. In his press release announcing the piece, Levine stated the purpose of *Iris*:

> Rather that existing as an art object, *Iris* is an art creator.... This type of participation, in which you are confronted with your image and your reaction to your image, is particularly vital today. Hopefully the spectator becomes aware of and gains an insight into the power of his [*sic*] own image.

One of the most influential video environments built during this period was *Wipe Cycle* (1969), Frank Gillette and Ira Schneider's nine-monitor video mural created for the exhibition "TV as a Creative Medium" at the Howard Wise Gallery in 1969. As a viewer entered the gallery from the elevator, his or her image was picked up by a video camera. Through the use of a time delay, the image of the viewer, which was updated every eight seconds, alternated with broadcast images and a prerecorded tape on the gallery's monitors. Schneider described the piece:

> The most important thing was the notion of information presentation, and the notion of the integration of the audience into the information.... You can watch yourself live watching yourself 8 seconds ago, watching yourself 16 seconds ago, eventually feeling free enough to interact with this matrix, realizing one's own potential as an actor.[17]

Fundamental to such work was the idea that through formal processes alone video environments could change the way people perceive themselves and others. Levine, for instance, predicted that *Iris* would "substantially alter the imaging patterns of the owners."

Yet another participatory project undertaken in the early years of artists' experimentation with television was the 30-minute videotape *The Medium Is the Medium* (1969), produced by the Public Broadcasting Laboratory at WGBH in Boston. Six artists—Aldo Tambellini, Paik, Kaprow, Tad Tadlock, Otto Piene, and James Seawright—were invited to create segments for the tape. In Kaprow's contribution, *Hello*, a group of people gathered at four

Boston locations that were interconnected by 27 monitors and five cameras. Whenever anyone in the group identified themselves or someone they knew on one of the monitors, they were instructed to say "hello." The resulting tape shows them calling out to one another, waving, and smiling. Kaprow explained, "Everyone was a participant, creating, receiving and transmitting information all at once.... We had fun. We played.... The information was not a newscast or lecture, but the most important message of all: oneself in communication with someone else."[18]

With hindsight, it's easy to dismiss this and similar projects as naive and fault them for employing an abstract, uncritical idea of the function of communication. Ironically, Kaprow, whose *Hello* epitomized this kind of work, delivered its most stunning critique just five years later. In "Video Art: Old Wine, New Bottle," published in a 1974 issue of *Artforum*, Kaprow singled out the work of Ira Schneider, Frank Gillette, Douglas Davis, Juan Downey, and others as "simple-minded and sentimental." He bemoaned their lack of critical thought and their "constant reliance on the glitter of the machines to carry the fantasy."[19] And he argued that the construction of often elaborate video environments intended to provide new perceptual experiences was no more experimental or novel that the "experience chambers" popular in the eighteenth century. Part of the problem, according to Kaprow, was that these projects were rooted in a certain progressive philosophy of education. Accordingly, "If people are given a privileged space and some sophisticated toys to play with, they will naturally do something enlightening, when in fact they usually don't." Kaprow concluded by comparing this work to world fairs' "futurama displays, with their familiar 19th-century push-button optimism and didacticism. They are part fun-house, part psychology lab."

Although Kaprow was correct to challenge the thinking behind this work, few other critics had done so, except those writers married to reactionary aesthetics.[20] Interactive projects were fun. And while technology continued to develop at a breakneck pace—from closed-circuit video cameras and monitors to, say, satellite hook-ups—artists kept producing optimistic work with it. At the same time, the emphasis shifted. The outlandish predictions about the ameliorating social effects of cybernetics failed to materialize, giving way to slightly less hyperbolic (if no less idealistic) responses. Nevertheless, communication still dominated as an important theme. There are numerous examples of such projects, using various means, but descriptions of three will suffice as illustrations.

Douglas Davis' performances that incorporated radio, television, and satellites in the 1970s variously represented efforts to "humanize" technology. In a recording of one of these, *Handling (The Austrian Tapes)* (1974), Davis stands alone in a darkened space. Placing his hands on an invisible glass surface that gives the illusion he is inside a TV touching the screen, Davis says, "Please come to the television set. Place your hands against my hands. Think about our touching—each other." Davis solemnly repeats this invitation and then makes a similar plea, concluding: "Think about this—our linking." Here and his other projects, Davis creates a metaphorical space in which he reflects on what communications technology should be. *The Last Nine Minutes*, produced for a live satellite transmission at *Documenta 6* in 1977, also delineates a space that represents the inside of a TV set. Seeking to reduce the distance between himself as producer and the viewer, he entreats the audience to break through the space separating them: "I will find you, in nine minutes, and when I do, we will destroy this thing, this idea." He pounds on a transparent piece of plexiglass and scratches it with a knife. The plexiglass is placed in front of the camera to give the illusion that Davis is actually maiming the TV screen. In the end he rushes forward and knocks down the plexiglass, accompanied by the sound of shattering glass.

If these performances symbolically vent Davis' frustration with the one-way delivery of communications technologies, they never explain the economic and historical factors that underlie the institutions of television. This theme—seeking interpersonal connection through the use of communications technology without questioning how the institutions that control this technology increase social fragmentation and individual isolation—also runs through Wendy Clarke's *Love Tapes*, a collection of over 800 three-minute tapes produced over several years, beginning in 1978. In *The Love Tapes* various people sit in a private booth designed by the artist and are recorded as they reflect on the subject of love. Clarke, who described *The Love Tapes* as a "public, interactive video art event," set up her booth in museums and other public spaces, such as the World Trade Center. After watching other *Love Tapes,* participants were asked to select background music, choose from an assortment of backdrops (e.g., scenes of beaches or forests), and talk spontaneously about love for three minutes while watching themselves on a monitor. After making a tape, each participant was allowed to decide whether to erase it or allow it to be shown publicly.

According to Clarke, *The Love Tapes*

> provides an extraordinary opportunity to watch and hear people reveal a deep dimension of themselves.... Through this particular use of video, we see a glimpse of humanity not otherwise possible. People begin to see that they no longer need be confined to a passive relationship with TV, but can become part of its content.

Personal disclosure—and, by implication, intimacy—is the goal of this work, but the tapes merely provide an *illusion* of intimacy. The project of producing intimacy via video presumes a structural attribute supposedly inherent in television technology that has been underdeveloped, a failure that can be corrected on the level of content.

If Clarke delineated a pseudo-private space within which people could express their personal feelings—albeit for public consumption—*Hole in Space* (1980), a "public interactive sculpture" by Kit Galloway and Sherrie Rabinowitz, sought to unite people via a live satellite hook-up between New York City and Los Angeles. Large video screens were placed in a street window of Avery Fisher Hall in New York and a window of a Los Angeles department store. With no prior publicity, cameras and microphones were set up, and for three evenings people in each location could see and talk with people on the other side of the country. As word about the piece spread, crowds grew larger and more ebullient, entertaining each other with charades and songs. Relatives arranged rendezvous at this free "video phone," bringing babies and family snapshots to the sites. Perhaps *Hole in Space* can be seen as a more technically sophisticated version of Kaprow's *Hello*, but there is one other crucial difference. Whereas *Hello* occurred in a private space populated by a preselected group of people, *Hole in Space* was more random, more public. People discovered it by accident, hence the quality of interaction was more spontaneous and less self-conscious.

Over and over, interactivity has been articulated in terms of establishing links between artists and audience, taking technologies developed for corporate and military use and appropriating them for humanistic purposes. The desire to overcome personal alienation and bridge cultural differences, to reestablish interpersonal intimacy using technologies that have been instrumental in maintaining fragmenting isolation—these are lofty ideals laced with humanist social theory. But notably absent from these works is a political critique of the *structures* of communication and how television technology not only reproduces images but social relations as well—an understanding of ideology. By concentrating on the formal aspects of interactivity and elevating technology as the central determinant of social interactions, these projects have illustrated a positivist model of technological progress.

Videodisc, the most recent video technology to excite interest among artists, however, has promised a form of interactivity where the processes by which meaning is structured attain center stage. So far, not many artists have produced interactive videodiscs, probably because it's prohibitively expensive, with incremental increases in cost depending on the degree of interactivity achieved. The single "dumb" Level I disc provides random access to still frames, while the Level II system, which has a tiny internal computer, consists of a videodisc player, a keypad, a videodisc, and a monitor. To access a frame or "chapter" the user presses a search button on the keypad, then enters a frame or chapter number to display a particular frame or sequence. A Level III system uses an external computer that provides expanded digital storage capacity. Since the computer can switch between disc players, multiple discs can be used to increase the amount of information available to the user. It also allows the capability to use

Cameron Johann plays the son and Ken Glickfeld the father in *The Erl King*'s "Burning Child" dream sequence, based on a passage from Freud's *Interpretation of Dreams*.

Courtesy artists

peripheral devices like an infrared touch screen instead of a keypad (some industry personnel call this Level IV). Writing in *Videography*, Linda Helgerson pointed out, "The more interactivity, the more still frames are required.... The level of interactivity directly affects the work of the project team: the scriptwriting, flowcharting, software design and development, and preproduction work."[21]

Lynn Hershman is credited with making the first artist's interactive videodisc, *Lorna* (1984), although other artists had previously worked on interactive videotape projects. The subject of *Lorna*, a Level II system, is a fictional 41-year-old woman suffering from agoraphobia. *Lorna* presents a branching narrative where the trajectory and outcome are determined by the viewer, based on selections from a number of options provided by Hershman. Through the use of a remote-control unit, the viewer pushes buttons on a keypad to determine what happens next. For instance, there are three possible endings: Lorna remains a prisoner in her own apartment; she shoots herself; or she shoots the television set, an act that symbolizes her emancipation.[22] For Hershman, interactive video represents a liberating social force. "Rather than being remotely controlled by media environments, the controls quite literally are now in the hands of the users, as is the key to a new area of individual freedom and empowerment."[23] But are users really being offered choices, or just another new toy, a more sophisticated version of a video game? Is interactive video, to paraphrase Kaprow, old wine in a new bottle?

Hershman's hyperbole aside, *Lorna* suggests two structuring activities—narrativity and gaming—that may shed light on why artists are attracted to interactive videodisc. Recent narrative theory has departed from the structural analysis of narrative units and structures in favor of the study of the dynamics of narrative—how a plot moves forward and works on the reader. As Theresa de Lauretis articulated this shift in *Alice Doesn't*, the focus is not on

> narrative but narrativity: not so much the structure of narrative (its component units and their relations) as its works and effects. Today narrative theory is no longer or not primarily intent on establishing a logic, a grammar, or a formal rhetoric of narrative: what it seeks to understand is the nature of the structuring and destructuring, even destructive, processes at work in textual and semiotic production.[24]

The interest in how narrative works, how it causes us to turn pages and construct meaning, derives from the concept of how desire operates in narrative. As Peter Brooks has described the function of desire, "We can, then, conceive of the reading of plot as a form of desire that carries us forward, onward, through the text. Narratives both tell of desire—typically present some story of desire—and arouse and make use of desire as dynamic of signification."[25] And David Tafler has identified some of interactive videodisc's characteristics that make this technology particularly relevant to a discussion of narrative: its lack of a linear structure, the ability for time and duration to be "self-regulated" by the user, and the shift from the "reading" of the text—i.e., its passive consumption—to a writerly mode, in which the viewer actively constructs meaning. "As a non-sequential index of moments, files, and clues, the interactive process takes on whatever meaning that may exist in its structure from the configuration of the individual spectator's exploration and play."[26] With interactive videodiscs, gaming structures are established that allow the user to engage in those ordering operations. Depending on the number of discs and players used, a seemingly inexhaustible number of combinations can be created, affording different interpretive possibilities.

It's telling that a number of artists who have previously produced videotapes referenced to semiotic theory have also been working with videodiscs. Peter D'Agostino, whose videotape *Quarks* (1980) borrows from both subatomic physics and linguistic theory, in 1986 produced *Double You (and X, Y, Z)*, a four-channel interactive videodisc that uses structural linguistics to explore language acquisition. Juan Downey, who produced *The Looking Glass* (1981) and *Information Withheld* (1983)—two tapes inspired by structuralism and semiotics—is completing an interactive videodisc based on his videotape *J.S. Bach* (1986). In this work, *Play Bach*, the viewer encounters a menu of 13 options consisting of, among other things, different variations on a Bach fugue performed by harpsichordist Elaine Comparone, visual representations of the score, and versions which compress and expand the fugue's tempo. Each segment is two minutes long. After the viewer selects and views a given version, the program returns to the menu, from which a different selection can be made. *Play Bach* uses one videodisc (which limits the number of possible permutations) and attempts to establish a correlation between the musical structure of a Bach fugue, with its theme and variations, and the operation of an interactive videodisc. For Downey, "There are certain counterpoint principles; it's a natural relationship between Bach and the computer."

Perhaps the most ambitious and complex artists' interactive videodisc project to date is Grahame Weinbren and Roberta Friedman's *The Erl King* (1986), which poses a number of questions about the dynamics of narrative. *The Erl King* is not structured as a branching story like *Lorna*, or as a series of variations on a theme like *Play Bach*. Rather than presenting a number of possible "meanings" or narrative developments from which to choose, the program tries to direct the viewer/player toward the construction of meaning based on desire. The viewer sits at a console facing a touch-sensitive screen, while a text on the screen invites the viewer to "touch," thus activating the program. Three videodisc players, each with approximately 50,000 frames, are interfaced with a computer, a video switcher, and the infrared screen. Whenever the screen is touched the computer sends a signal to the switcher, which controls the three disc players. Depending on what sector of the screen is touched, different visual and/or audio material plays on the monitor. Sometimes touching the screen changes the audio, or just the video, or both.

When the program is activated, a woman appears and begins to sing (in German) a Schubert *lied* based on a poem by Goethe, *Der Erlkoenig*, which tells the story of a father's failure to respond to his young son's fears of the mythical Erlking who is trying to entice the boy. As the father carries the boy through a forest on a stormy night, the boy pleads with his father for help. When the father reaches the edge of the forest, the boy is dead in his arms. A second set of images and text presents an enactment of the "Burning Child" dream from Freud's *Interpretation of Dreams*, which, like the Goethe poem, concerns a father's failure to heed his son's premonitions of imminent danger. For Weinbren, the structure of dreams—"the way the mind can coalesce different lines of thought, images, beliefs, desires, and

A line from Goethe's *Erlkoenig* painted on an abandoned car in New York City, is one of the images used in Weinbren and Friedman's interactive *The Erl King*.

Courtesy artists

memories into a single image"—paralleled his thinking about interactive video. "I'm interested in finding images that are conglomerates of not necessarily consistent themes and then letting the apparatus make the viewer aware of the interlocking elements."[27]

The Erl King employs a mosaic structure: depending on which section of the screen is touched, different visual and audio information appear. There are approximately 90 minutes of material assembled on the three videodiscs accessible to the viewer/player. Besides the Freud and Goethe sections, Weinbren and Friedman created approximately 30 more scenes in which visual elements from the two central motifs appear: psychoanalyst Stuart Schneiderman interpreting the "Burning Child" dream, activity in a chicken processing plant, a Chinese chef at work, a roller derby, a performance by a trombone and percussion group, and so on. They also included about 500 still images.

What are we to make of it all? That is precisely the point. Weinbren stated that he was "interested in making an apparatus that would display some image material in time and encourage viewers to respond to it by interrupting the flow."[28] Unlike film, which lures the spectator into the process of watching or "constructs" its subject, interactive video can constantly disrupt the narrative flow of the moving image. In Weinbren's words,

> The linear quality of narrative is challenged by this medium simply because it bypasses beginning at one point and ending at another: the beginning is where the viewers walk in, the ending where they walk away. Exactly how things happen in that time is determined by what viewers do in it, and at any point there is the potential for something different to happen.[29]

Because *The Erl King* deals with the intersection of narrative and cinema as systems of signification, it is more akin to avant-garde film than earlier interactive video experiments. By investigating psychic structures, not sensory stimuli, a different agenda is proposed: an inquiry into where meaning resides and is produced. Whereas works like *Wipe Cycle* or *Iris* were calculated to alter viewers' perceptions of themselves through the interaction with information systems—a behavioristic model of perception—*The Erl King* invites the viewer to enjoy the unexpected twists and turns of unconscious associations. And, unlike *The Last Nine Minutes* or *Hole in Space*, which conceived of interactivity as communication between individuals, *The Erl King* assumes that communication is more complex, linked to narrative processes. In this piece, videodisc technology supplies the means to reproduce the dynamics of narratives, sidestepping the formal *cul-de-sacs* and idealization of technology that have been common to artists' concepts of interactivity. Although attempts to rationalize everyday life, evident in devices like automated bank tellers and computerized training programs, will undoubtedly remain the prevalent uses of interactive videodisc systems, Weinbren and Friedman's work represents a departure from previous efforts by artists to humanize this machinery. Instead, *The Erl King* acknowledges and exploits the irrationality of lived experience.

NOTES

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