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THE TECHNO/*Cultural* INTERFACE

In a contracting world, real-time visual telecommunication may become a 'hologrammatic' nightmare. As high-tech applications proliferate, they threaten to accelerate the eradication of cultural difference. Each new system's material reality makes claims on its users; each new wave impacts proportionately on the language, ritual, influence and power among communities. Borders change, territories diminish. As distances diminish, the collision of social forces disrupts, fragments, and eventually destroys contingent customs and practices, particularly those predicated on earlier, now outmoded, networks of time and space.

While technology may destabilise frontiers, does high technology inevitably destroy tradition? Can an indigenously developed telepresence accommodate newer technologies and thus maintain the traditional bridges sustaining older cultures?

The electronic age is an age of 'secondary orality', the orality of telephones, radio, and television, which depends on writing and print for its existence (Ong 1982). This notion of 'secondary orality' harbours the potential for the continuity of oral cultures without the disruptive and arbitrary shifts to literacy. Earlier examples include the theories of oral performance from the Homeric tradition developed in the 1930s (Parry 1989; Lord 1960), Worth and Adair's project (*Navajos Film Themselves*) and the Warlpiri Media Association efforts to make their own television programs in the 1980s, as reported by anthropologist Eric Michaels (1987). The Warlpiri project gave native speakers the means to broadcast indigenous language and culture 'on air'.

Along with these noteworthy film and television projects, other exploratory efforts and pockets of resistance operate along the boundaries of high-tech and traditional cultures in the electronic margins of the digital arts and sciences. Here, a platform exists for engaging and contesting new influences, for making connections within frameworks determined by self- or community-originating spiritual, ideological, aesthetic, and social standards.

Art, as the site of collision, of struggle, a breeding ground of renewed resistance against the latest accommodation, retains certain rituals. Its conceptual and linguistic patterns plough the narrow, electronic/mathematic corridors of applications spawned by engineers and technicians. Individual art projects on the cultural edge sustain psychological, ecological, and sociological concerns.

A metadiscourse such as this one must always self-referentially examine its own process. A written embodiment of the process of examining the interface between written and oral cultures risks losing the flexibility to adjust to the overlapping, criss-crossing factors mediating a constantly changing, evolving communication. A statement by ethnographic filmmaker Jean Rouch aptly captures the problem:

> The fundamental problem in all social science is that the facts are always distorted by the presence of the person who asks questions. You distort the answer simply by posing a question (Georgakas et al 1978).

Caught in this double bind, this written project represents an effort to build a fluid dialogue of ideas and positions from certain

living relationship to the present' (Turner 1980).

Recognising the expansion and contraction of underlying social and economic forces helps to codify the plethora of transpiring developments. Of all the shifting techno-environmental parameters, electronic media/communications form the respective axes around which all this activity hinges.

According to Ong (1982), 'oral discourse has commonly been thought of in oral milieus as weaving or stitching – rhapsoidien, to 'rhapsodise' basically means in Greek to stitch songs together'. From their tribal origin in traditional oral cultures, string-figure games have become universally known and played by children of wide and varied ethnic origins. D'Agostino's *STRING CYCLES* uses the ancient art form of string-figure games, popularly known as Cat's Cradle, as an allegory for the transmission of knowledge in our contemporary electronic age. *STRING CYCLES* interweaves aspects of the oral tradition with new technological forms. Through an on-going process, it provides the threads to link a continuum of past in a 'living relationship to the present'.

The subjects of the string-figures commonly derive from activities of daily life or from nature – with configurations that illustrate the stars, the planets, and phenomena such as lightning. Anthropologist Franz Boas described Eskimo string-figures in his writings of 1888 (Boas 1965). By some accounts, these games may have originated in Asia.

In this age of electronic information, however, television and video games have replaced many forms of storytelling. String games may remain but their narrative function has virtually disappeared. Through analogy and metaphor, the processes of 'the game', as well as many of the cross-cultural sources, become integral parts for expanding the interactive possibilities of this hypermedia project. They include on-line tele-communications networks utilising databases and telepresence, and computer or video-phone links from a variety of remote sites. They continue to expand the potential cultural diversity of their participants. These 'interactors' take on qualities of the oral performance discussed by Parry in *The Language of Achilles* and Lord in *The Singer*

of Tales. The 'oral poet is a composer. Our singer of tales is a composer of tales. Singer, performer, composer, and poet are one under different aspects *but at the same time*' (Lord 1960, 13).

As a living oral history project, *STRING CYCLES* documents aspects of cross-cultural storytelling. Several interrelated threads and themes simultaneously run through the work. While the string-figure games operate in both a literal and figurative sense, they are primarily thought of as a structuring device to combine narratives from a broad spectrum of cultural traditions, from Aboriginal 'songlines', African folktales, and Native American creation stories, to the Homeric epics of Serbo-Croation singers playing the one-stringed 'gusle' instrument, the visual poetics of Stephen Mallarme, and the multi-dimensional 'SuperString' theories of contemporary physics, which have uncanny parallels to the Buddhist allegory of Indra's Net:

> Indra's Net tells of an endless net of threads throughout the universe – the horizontal threads running through space, the vertical threads running through time ... At every crossing of threads is an individual and every individual is a crystal bead; every crystal bead reflects not only the light from every other crystal in the net but also every reflection of every reflection in the universe (Hofstadter 1979, 258).

Each thread and theme, song and string connects and augments tradition by fortifying a sense of self in the context of a difficult and complex universe. Within each community, each individual develops a sense of perspective from their relationships with their peers. Within nature, a community measures its existence by its relationship with the environment. Insofar as these relations remain in constant transition, the interface governing their process becomes a critical site triggering as well as measuring change.

The transformation of the notion of the interface device begins from primitive sticks, paint, pencil and pen, the television screen and its remote control. It continues with the computer keyboard, mouse, touch-screen, and voice activation. Would a voice-activated interface draw a contemporary community closer to orality? How can we begin to

speculate? While voice activation as a technology exists, it has yet to be integrated into the type of scenario we have become accustomed to in science fiction novels and films such as *2001*, *Star Trek*, and a host of others. Transported back to our time in the film *Star Trek IV*, engineer Scotty attempts to activate a desktop computer by picking up the mouse and talking into it. Coming from a future society using sophisticated voice-activated computers, he confronts the relatively crude and obsolescent point-and-click technology, which for him proves to be entirely useless. In constant use now, the keyboard, the mouse, and the touch-screen represent the limited springboard of user-friendly interfaces from the early desktop era. From these practical devices come the utopian visions and dystopian nightmares of HAL, the computer in *2001*. HAL not only uses speech recognition and language, it also possesses an artificial intelligence that can virtually take command of the space mission.

Media codifies experience; in short all human history and activity. (By no means sacrosanct, the shape of communications technology embodies other struggles. The natural/artificial split, the consequence of altering the environment, represents the most crucial struggle with the most far-reaching and profound consequences.) A voice-activated interface does not represent the universal solution. The notion of the interface should remain open to simultaneous possibilities. One system does not necessarily replace the other.

A generation brought up on television first begins to believe in the screen as an interface, then (in rapid progression) in the remote control, the videotape, the computer game. Broader notions of interface devices suggest more potent implications. In *The Art of Human-Computer Interface Design*, Brenda Laurel writes that:

> When the concept of the interface first began to emerge, it was commonly understood as the hardware and software through which a human and a computer could communicate. As it has evolved, the concept has come to include the cognitive and emotional aspects of the user's experience as well (Laurel 1992, xi).

Two examples of the broadly defined concepts of the interface can perhaps illustrate

what we mean. When the domestic videotape of the infamous beating of Rodney King by Los Angeles police in 1991 was shown on television, it was edited to suit the short-clip TV broadcast format. Later, in court, defence attorneys for the police used a slow-motion version to show analytically just the opposite of what the viewing public had been led to believe on television. In this case, the police officers' night sticks became 'interface devices'. The different uses of the original videotape became 'interfacing strategies'.

The viewing public could only judge the days of rioting and looting that followed the verdict by the selective footage of the TV broadcasts and the slow-motion videotape presentations. Finally, and ironically, the viewer saw the face and heard the voice of Rodney King on television, now the personification of the 'other', himself, pleading for togetherness: 'Stop making it horrible ... Can't we all get along?'

Another graphic example of interfacing – the televised 1991 Gulf War – put virtual reality on display. First, CNN and broadcast network prime-time news transmitted the live sounds and images of the war. Dehumanised, the camera eye of the computer-driven smart bomb positioned its audience within the point of view of the bomb, not of the victims on the ground or anyone viewing the destruction. The bombs moved into their targets, recorded their hits, and exploded not unlike a videogame. Lecture demonstrations by the generals reduced the press coverage to news conferences heralding the success of these strikes. Rarely did other eye witnesses capture the action on video. The news media offered very little evidence of civilian casualties. Even when evidence appeared, it was quickly denied.

Triggered by the stress and strain of expansion, encroachment, and war, the nature/culture interface becomes the crucial frontier. In a recent article describing the annihilation of native culture in the Yosemite Valley of California, Rebecca Solnit writes: 'Many people believe in something untouched called nature, and that only the untouched is natural' (1992, 56). Inseparable sides of the same world, every development in one forces a chain of effects in the other. The sequence of events remains in process until the oscillation remedies any residual

imbalance. That chain can stretch beyond fathomable limits, often leading to dire consequences.

Along this horizon, a techno-cultural chain of events often threatens to dislocate cultural activity from the grounded patterns and progressions traditionally governing life activity within those societies whose culture aligns with nature. For these tribes to survive, the restoration of balance becomes crucial.

Balance does not mean equivalence. As an entropic concept, it defines the operant forces active within any and every historic/temporal location or space. As a cyclical entity, the possibilities and constraints of every time and space causally influence their play. Bound with and yet unrestrained by the environment, animal behavior remains the principal agent of nature. The human animal, not surprisingly, makes the only discernible difference. Solnit quotes Ursula LeGuin's reference to California:

> What the whites perceived as a wilderness to be 'tamed' was in fact better known to human beings than it has ever been since, known and named. Every hill, every valley, creek, canyon, gulch, gully, drain, point, bluff, beach, bend, good-sized boulder, and tree of any character had its name, its place in the order of things (Solnit 1992, 56).

This failure to acknowledge or recognise the culture-nature interface represents the evolution of civilisations whose muddled figure/ground categorisations have truncated tribes from their ancestral habitat. Renaming the sacred mounts, these industrial societies measure their presence by the extent to which their manufacturing tools tear up and reconfigure the environment.

The concept of environment becomes a theoretical platform for defining operant forces. As defined by commodities, space equals the presence and absence of raw goods: forests, minerals, waterways, fertile soil, fair climate, and favourable topography. More recently, 'information' has reached the status of a commodity. No longer dependent on groups of people, its distributed production has liberated communities from the space-dictated constraints of their immediate surroundings. Expanded information technology opens up formerly one-company towns to outside influences (Manning 1992,

22-33). Another nature-culture severation transpires. This blatant separation between human tribes and their surroundings embodies the increasingly bounded and contained experience of industrialised societies.

As defined by experience, readable technologies distance individuals from the conditions mediating their environment. While other animals experience cold, a human reads cold by the thermometer in the window. What happens to the experience of cold? What happens to experience? In his book *Technology and the Lifeworld*, Don Ihde writes:

> In a cold environment, I could tactilely experience the wind and chill; but if I have 'chosen' to mediate that cold by wearing down clothing, I now substitute feeling the wind for feeling the warmth of what I am wearing. In this case, the 'environment' is simply brought close and itself has the texture of one of the many cocoons humans employ in all non-Garden situations. The technology (clothing), however, transforms this immediately experienced environment; and it is that transformation which must be investigated (Ihde 1990, 17).

What does the experience of 'cold' mean when viewed through the window? The electronic window, television of course, marks the crucial interface. If experience defines environment, what ramifications follow the reconstruction or elimination of experience? Ihde continues:

> Direct bodily-perceptual contact with an environment counts as one side of the non-technologically/technologically mediated human experience that forms the focus of an entry into the analysis of human-technology relations (1990, 17).

Perhaps that body-perception portal has a (hi)story.

Stories recuperate technological advances that have distanced human societies from the rigours of their environment. Stories function to maintain a balance by cognitively bridging the techno-environmental frontier. Bridging generations, stories tell of forgotten experiences while transmitting knowledge, lineage, and insight. Insofar as they transcend spatial and temporal constraints, the formulation and exchange of stories represent

the harbinger of more advanced telecommunications.

Each generation of stories augments the former. Each new technology contributes to this ancient process of mediation. With each qualitative or quantitative, virtual or real disruption, new forces carry the potential to disturb the targeted equilibrium of older stories, their traditions and displaced systems of communication.

A number of factors determine the extent to which new communications technology will change this history, its construct and operation. Subtleties of scale affect these factors. As a function of population density, the transmission of meaning/significance may vary when shifted from the intimacy of a one-to-one or one-to-few encounter, to a one-to-many, or many-to-many production. Information has value. The exchange of that value remains contingent on who maintains access, how certain individuals or groups generate interpretation, and what form of transformation accompanies each phase of further communication.

Habitat shapes communities: topography and climate, proximity to raw materials, farm and industrial production, coastal areas and other population centres. Driven by economies of scale, technology's role depends on the requirements and constraints of each group as cast by their particular habitat. Since technology plays to the largest common denominator, it eradicates differences. Without difference, meaning ceases to have any value. Therefore, small communities must fabricate a certain difference. With the latest technological advances, those remote possibilities exist. Unfortunately, the techno-intrusion threatens to disturb whatever lingering balance remains within native communities.

Aboriginal law, an 'ideology of participation', serves as the perfect example (the term is borrowed from Trudel 1991, 72). As a web of relations, the law keeps the fluctuating relationships of a fluid community of living individuals, situated within an ancestral history, in balance over time. All exchanges – ritualistic, personal, economic – represent divided allocations, reciprocal obligations, perpetually recalculated and reassigned to bring the system back into line (Michaels 1987, 18, 23, 32). Over time, these

balances between relations – mediated and controlled – take place over many communications.

In all societies, a common set of traditions, economic needs and social practices define the individual and link that individual into a larger community. In urban civilisations, money mediates and adjusts relations. Money balances the exchanges that initially stem from one's lineage and position. Its uneven distribution becomes a source of power and authority.

To a varying degree, depending on the society, the ideology of the individual masks the interdependence of all people within an industrialised society. The cult of the individual fuels the illusion of limitless freedom. In Aboriginal society, the 'law' foregrounds relationships. This awareness empowers the individual with a legitimate understanding of his or her position. That position has a history and a future guaranteed by those rituals and obligations in support of the law. This reciprocity affects authorship and viewership. It also affects performance.

The story serves as the currency of this exchange. Some family or group owns every story. Specific individuals identify with and assume responsibility for preserving the authenticity of particular stories and their transmission (Michaels 1987, 33). With all stories inscribed by the land, new stories become variants, missing parts – forgotten, now rediscovered – of known accounts. In an oral culture, retrieval operates within the system.

When an oral culture comes in contact with a culture with a written history where recording takes precedence over performance, a problematic schism emerges. Mummifying the system of exchange bankrupts the social order. How does an oral culture bring new technology inside the law?

Replacing linear devices such as the typewriter with the multiplex menu-driven environment of the computer opens up an exchange with the tools that threaten the integrity of language, the story, communication. As the relationship between the machine and its operator changes, so do the relationships among individuals and groups. At the heart, destabilising this interface, rests the nested structure of interactivity. The interactive portal heralds the

realm of limitless future possibility. It also poses the gravest risk. Quite unlike the face-to-face encounter between two individuals, interactive conduits mediate the relationship among users. Loaded with parameters, the conditions, codes and procedures of that interaction become the cultural interface, the frontier of appropriation and control.

At the juncture of cultural activity how does any single system reconcile difference? In a computer environment, language has a much broader meaning. Its syntax extends to the procedures nested in the commands. A linear routine represents a grammatical arrangement whose logic lies deeply immersed within lifestyle, within environment derived traditions. Any mass-produced hardware responds to the lifestyle/environmental needs of the largest body of potential users.

Within the more critical area of command structure, programmers writing software do not design, or have the capability of designing, a Rosetta Stone of interpolative response. Users from other cultures must conform to alien scripts. Pull-down menus allocate response activity within certain categorically operant cells. The opacity of computer codes means the loss of inflection and dialect.

For an oral culture, the problem lies within the instruments themselves. Working at a screen implies a fixed set of written conditions that codify the practice and mediate the message. A categorical menu represents a logic derived from specific organisational practices. An assembly-line mentality imposes an arbitrary, perhaps artificial order to those categories and their sub-routines. Original input gets nested into files, folders, boxes, screens, stored in absolute and finite temporal/spatial borders. When these frames adumbrate the message, what happens to the user?

How does the screen change the potential reservoir of stories? With an attention fixed system, can the user adjust the interface to accommodate different story recipients? Does the system shift with reversed roles or recognise the relative differences in the exchange? Does the system permit violations of its built-in limitations?

An interactive system must transcend the programming parameters implicit in the machine. This can come about if the machine serves as a conduit for relaying messages fabricated through some other structuring system. One possibility lies with interactive television. Here, the system merely delivers a message by obviating spatial distance. It works like a telephone with visual and collective features. Designing a flexible software with manipulable access made available to the hypersyntactic input of the user is another possibility. If a user-friendly environment permits the user to structure the grammatical interface, accommodation is feasible. Perhaps, an intermediary between the native community and the manufacturing society can participate in designing an instrument compatible with the needs of local community groups and native tribes. This idealistic and, perhaps, unrealistic collaboration may enable or empower native cultures to preserve their diversity and autonomy. Would that collaboration compromise industrial imperatives?

Why should a community acquire these tools if they have historically functioned successfully without access? Smaller communities do use new tools and their lifestyles do change. Though this techno-integration takes place at a slower pace, its traumatic upheaval remains potentially far more disproportionate. These communities must co-exist with an encroaching outside/other force within a limited and shrinking horizon. For these cultures, the consequences of this compression may mean the irremediable loss of their history, their storytelling apparatus, their contact with the earth and the stars, their balance, and their bonds and relationships. The boundaries shift. Refuge disappears. Smaller communities must appropriate the tools and develop their own conventions in order to weave their own stories and chart their own survival.

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