

SPECULATIONS:
on the evolutionary continuity of music
and animal communication behavior

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Definitions for language devised by linguists have generally relegated paralinguistic phenomena to a trivial status. Thus, much of the rich variety of human and animal expression is pared down to "essential" characteristics suitable for analysis by the wielders of Ockham's razor. The narrow boundaries such definitions impose have not only shaped our current understanding of systems of communication between other life forms but adversely impose limits upon our understanding of so-called artificially generated human communication systems such as music. Ironically there may be significant similarities between these systems that could contribute to our understanding of "language," while challenging current definitions of it. The importance of such an interaction between the study of music and the study of animal communication signals addresses the very issue of what might distinguish human consciousness from that of other animals. While this question has been central to the foundations of science and philosophy, understanding of how music may specifically contribute to its elucidation remains to be articulated.

There is something particularly ironic about trying to prove the "species specificness" of human language through human language. Is it possible to use the very tool through which we construct reality to imagine any other outside of it? Ethology attempts to draw inferences about human behavior from observation of animal behavior but to some extent all behavior attributed to animals becomes a mirroring of the human if we cannot step outside of the innate "bioprogram" of our descriptive language. Even though the rationalist view of Chomsky is

correct in stating that human language is species specific (grammar as an innate manifestation of biological structure), the same argument is somewhat applicable to the unique communication structures of any species. A unique *grammar* is intrinsic to a particular biological structure and "cognitive domain."¹ This is an oversimplification of something akin to the "innate release mechanism" of Lorenz. Briefly stated, an IRM is an evolved sensory mechanism which pre-disposes an individual organism to respond to specific patterns of stimulation from its external environment. Marler has proposed that such mechanisms served an important role in the evolution of human speech and that something similar to the modifiable auditory templates of birds was involved in both our speech and motor development. How this is similar to IRM can be seen from the fact that infants as young as four months process speech sounds in essentially the same fashion as adults: that is they process it segmentally according to certain identifiable morphologies of phonation. Furthermore, Marler suggests that they can process such speech formations without prior exposure to them.² Can such innate properties of human speech imply its connection to an evolutionary continuity of animal communication behavior, and what characteristics might such a continuity exhibit as a more general structural pattern?

The concept of a self-referential consciousness is analogous, in cybernetic terms, to more comprehensive feedback loops ensuring the organism greater stability. The extraordinary flexibility of human speech as a productive system is specifically bound to such self-referential feedback. Since greater complexity results in greater feedback and stability within biological systems, the evolutionary push seems to have been toward self-consciousness. While the recent product of this process has been the increase of self-awareness in individuals within our species, it seems probable that similar levels of complexity, resulting from interaction within networks of individuals of less complex organisms, could achieve an analogous form of self-reference. In such a circumstance the so-called social organization would correspond to a "self". To define complex systems comparable to

those of human language would require linguistic analysis of complex eco-systems or social organizations within a species, and not just its isolated member.

Distinctions between human language and the communication patterns of other animals reside in the form of information exchanged in the sense that our language is primarily *digital* compared to the simpler *analogic* structures of animals.³ It is logical to assume that the more complex the organism, the greater is the need for a more diverse set of communication skills and patterns. In animal kinesics, the magnitude of a signal often corresponds to the magnitude of the referent in relationship to the animal. In human speech the magnitude can not only be arbitrary but irrelevant, and depends upon units of speech which can generate an infinitely productive system. Thus, evidence of a sophisticated linguistic structure originating from an eco-system or social organization would most likely exhibit such a "digital" structure whereby emphasis is shifted from the discrete signal of an individual organism to the interactive patterns which yield a composite structure. For instance, James L. Gould has discovered that foraging honeybees apparently possess sophisticated powers of extrapolation and can arrive at a conclusion based upon an assumption of pattern deduced from past experience.⁴ Such abilities can hardly be explained with simple reference to the current definitions of consciousness and language, or to the interdependence of both. Nor can the isolated mental capacity of a single bee support such complexity. We must either dismiss the role of language in consciousness or look for evidence of a linguistic structure within the complex interaction of a species' social organization or larger eco-system. The total communicative vocabulary of an individual might be regarded as latent "bits" of a larger logic resident in these interactive patterns, and similar in structure to the productive capacity of human speech. In other words, while the isolated calls of a single wolf are not comparable to the complex speech of an individual human, perhaps the interactive vocal pattern of the pack is and might be regarded as the self-referential evidence of a comparable mental structure. To isolate and study only the

individual's calls is analogous to focusing only on the separate phonemes of human language and not its grammar.

To unravel the linguistic code of a cybernetic logic as large as a species' social organization, let alone the overwhelming complexity of an eco-system, seems a ludicrous proposition. Given the difficult task that acquisition of a foreign human language represents, it seems absurd to contemplate language on a level of multi-species interaction. To further compound the problematics, we may once more ask the basic question: what *grammars* could such linguistic structures exhibit which might be recognizable as such by humans? This question, however, shifts emphasis from a more fundamental issue. It assumes an impossible objective stance in relationship to an environment from which human observers cannot extricate themselves. Thus, the assumption is not that evidence of such structures should be sought in order to render the intelligence of another life form translatable; rather, such evidence is only part of the ongoing process of discovering the larger mental system within which we are also participants. The creation of interactive languages is not only appropriate, it is essential. Recognition of the language of the observed is only groundwork from which intrinsic interplay may proceed. We must begin with interaction in order to infer language instead of assuming it. It must be invented within the context. Entering into interaction is to begin generation of orienting behavior which includes the other organism. If such orienting behavior eventually permits self-description of its interacting components, such that these organisms can orient to each other and themselves, then a resultant consciousness is immanent through recursive description. As Maturana says:

*"Consciousness, then, is not a neurophysiological phenomenon, it is an epiphenomenon of orienting behavior that lies entirely in the linguistic domain."*⁵

Gregory Bateson provides cogent insight into the communication structure of dolphins by pointing out that they may communicate information about the patterns of relationship

digitally whereas land based mammals fundamentally perform this task through analogic kinesics.⁶ While humans utilize spoken language to communicate most things, we in large part allow the gestures of our paralinguistics to express these patterns of relationship also. He asserts that cetaceans, like other mammals, are preoccupied with such patterns but must have encoded the communication of them into their vocal emissions because of the nature of their anatomy and environment. Even though such a communication system would probably appear bewildering to terrestrial mammals, Bateson outlines a research plan for its investigation. This plan parenthetically includes a hunch that this system would not so much resemble the spoken language of humans but rather our music. John C. Lilly also seems to share this intuition⁷ and the idea has even found its way into "pop" consciousness. Every year hordes of tourists descend upon the spawning territories of the California Grey Whale to serenade them. Despite such trivialities this intuition about the potential for music as an interactive language is an appropriate one.

To comprehend the possible similarities between music and cetacean "speech" we must understand the structure of music as similar to a Markov Chain. A Markov Chain is a special kind of stochastic process where the sequence of symbols produced by a system are not only determined by certain probabilities but those probabilities depend upon previous events in the sequence. As a Markov Chain unfolds, its information decreases as a function of the decrease of uncertainty in the pattern. Music deviates from this in the sense that composers continue to insert uncertain elements into the structure as pattern probability increases: continuous elements of the pattern remain highly redundant while new elements are information rich. In what ways can cetacean vocal emissions resemble music and still convey information about patterns of relationship? My guess is that levels of pattern hierarchies exist which also resemble a Markov Chain. In certain of these levels redundancies are assumed which when deviated from convey specific information about changes in relationship patterns. Such levels would be reserved for this

function while others in the overall waveform could serve to convey more abstract data with less assumed redundancy. The complexity of such a waveform would of course be astounding and it is just that feature which resembles music. In both systems the complex interplay between highly redundant levels of the structure and others of low probability generate a contrapuntal structure.

The complexity of dolphin signals is further compounded by a possibility posed by Kenneth Norris. He has theorized that emotional reactions between dolphins may be read through echolocating each other's internal anatomy and that they may have evolved such that these concepts take on importance as internalized kinesics.⁸ This, however, does not rule out the potential for abstract communication since the complexity of their vocal emissions persist. Therefore, this is another possibility that must be added to the overall communicative waveform in ways that are analogous to the interaction between human speech and kinesics. A further speculation is that dolphins may actually "think" in terms of sonic images derived from these echolocating skills. This may be similar to the ability of musicians to actually think in sound "images" in order to improvise or recall a compositional structure from memory.

The language acquisition skills of the congenitally deaf have shown the lack of dependence of language on speech. Consciousness is obviously not hopelessly linked to the speech channel yet it is very difficult for language "speakers" to imagine what thought could consist of without its speech associations. Likewise it has been nearly impossible for us to imagine an ability to think without words. The gap between human and animal intelligence remains defined by this supposed incapacity even though the deep structure of other communication systems may show similarities on levels exclusive of words, yet remain sufficiently productive to generate "thinking" processes. Donald Griffin uses the concept of "mental imagery" to describe a similar idea:

"Mental images obviously vary widely in the fidelity with which they represent the actual surrounding universe, but they exist in some form for any conscious organism."⁹

Such mental images also seem to be an essential characteristic of creative thinking in humans as if regression to such a pre-verbal mentality were necessary to disassemble the fixed assumptions of our word/speech constrained realities. This regression to less inhibited levels of mentality is what Arthur Koestler has termed "draw-back-to-leap." It appears to not only be a recurrent pattern of human thought but also an intrinsic process in biological evolution as well. "Disintegration and reintegration, dissociation and bisociation reflect the same pattern."¹⁰ Intellectual and natural history share a common deep structure.

A similar concept forms the basis of Derek Bickerton's theory to explain transformations in human language. He proposes that the origin of Hawaiian Creole was a creative product of immigrant children who within a generation synthesized the diverse languages of their parents into a new tongue.¹¹ Obviously the non-rigidified mental play of children forms an important part of their language acquisition skills and may have always played a major role in the evolution of language throughout human history. Perhaps it is also possible that each individual retraces the mental history of humanity in the same way that ontogeny recapitulates phylogeny. At some point in the individual's growth, "cognitive" branchings may occur which either reaffirm a consensual mind/language path or allow for creative mental play through these same disintegration/reintegration patterns.

Music as a discipline may serve such a "play" function within the cultural context. While the assumption has been that creative thinking precedes the actual physical evidence of music making, it is also true that the unique cognitive demands of music as language acquisition generate an environment for creative

dissociation on a cultural level. Music has long been split between being regarded as a "higher" product of consciousness or a vestige of primitive impulse. It seems more likely that music requires a broad range of cerebral activity where "thinking" is not merely limited to verbal constructs. Such integration of mental components into a mental whole is also a *conscious* reaching back into more archaic levels of mind. This may also represent a flexible potential to reinvestigate states of awareness which we share with other life forms. As a potential for interactive language, the model of musical improvisation is useful since it is intricately complex and yet the rules for its structure evolve within the context of interaction. Once again the Markov Chain comparison is appropriate. It is the specific lack of meaning prior to the context that is essential in the sense that what is assumed are only the general criteria for pattern making, and not signification for those patterns until redundancy establishes the decrease of uncertainty.

The current popularization of hemispheric brain research has spread certain assumptions about the localization of musical perception. Misconceptions seem to have resulted from researchers simply asking the wrong questions while grossly misunderstanding the phenomena they wished to observe. Current terminology such as analytic versus holistic has confused the essential issues. Justine Sergent has designed studies which suggest that both brain hemispheres analyze and that both perceive wholes.¹² The essential differences reside in the realm of data resolution, the left having a capacity for higher frequency information while the right favors lower. The result is a complementary dissociation between hemispheres which is not necessarily based on the type of information perceived (*i.e.*, music versus speech). These resolution capacities signify an evolutionary shift from predominantly analogic systems of communication to digital ones necessitated by the faster perceptual rates of speech.

Julian Jaynes has proposed the term "bicameralism" to describe a pre-conscious stage of our evolutionary history.¹³ This state

consisted of linguistic constructs channeled into awareness as aural hallucinations imagined as emanating from an external source. While Jaynes explains this in terms of certain brain-hemispheric-dominance theories (a transition from oppositional/right to verbal/left), I find the idea more consistent with a transition from analogic to digital language locateable at an evolutionary stage of gradual dissociation from an *eco-systemic mind*. Jaynes also considers music, poetry, and schizophrenia as throwbacks to the bicameral state. Research showing the beneficial effects of wilderness on recalcitrant schizophreniacs implies a similar connection.

Complex ecosystems such as a climax rainforest signify the push toward stable diversification where the multi-faceted interaction of life forms ensures maintenance of the total system. Ecologist Howard T. Odum describes the relationship of early man to these systems:

*"When man was a tiny part of the stable complex forest, his faith was in an umbrella-like energy system with God identified as the intelligence within the mechanisms of forest control, the system. Primitive forest peoples such as the early Druids of Europe had religious faith in the forest as a network of gods operating with intelligence. A stable forest actually is a system of compartments with networks, flows, and logic circuits that do constitute a form of intelligence beyond that of its individual humans."*¹⁴

Before the shift from analogic to digital communication, hominid intelligence must have filled an intrinsic niche in the cybernetic "mind" complexity of such networks. A variety of recurrent myths from diverse cultures express a sense of communion generated by the composite mentality of these interactions. Such an "archaic" mentality may still be vestigial in our brain physiology. The need to revisit particular wilderness habitats may arise from these components along with a persistent fascination for tribal human/animal myths. Could such myths be

a descriptive memory of a sense of participation in some larger mental structure before the human mind developed sufficient self-referential linguistic complexity to become individually conscious?

If it is possible that mental structures are generated from complex interactions where new characteristics emerge from the interplay of two or more existent systems, then I find it quite conceivable that the idea of the human cognitive apparatus as a unique event in nature is only true in so far as it applies to individuation within a species, and that this is only one of the possible outcomes of the more general evolutionary pattern and necessity for communicative behavior. Is it not possible that evolutionary "strategies" involved co-existent trajectories where the push toward more complex mental structures not only resulted in speciation and individualized mentation but also in larger mental systems resident in the interactive dynamics between component species? Furthermore such co-existent trajectories could conceivably result in a serious problematic which we may now be observing. If an individual species developed sufficient self-referential complexity (*i.e.*, the cognitive domain of the conscious human mind) to escape the "orbital influence" of the larger mental structure within which it was resident, conflict might arise. Unless balanced patterns of interaction are retained which allow for "linkup" between the individualized consciousness and the eco-systemic mind, the individualized mind could forget itself as a component and begin to behaviorally subvert the larger structure. Such a separate mental system might, however, retain elements susceptible to influence from the eco-systemic structure and continue to exhibit behavior reminiscent of its more archaic function as a mental component. This behavior could appear intermittently and mostly outside of the conscious mind's window of awareness. Mosaic patterns of mentality could also arise from the potential for components of a cybernetic system to rearrange into different mental configurations. In addition to consciousness being resident in a fixed manner within the interaction of consistent variables, there could exist forms of

consciousness which are intermittent resulting from cyclic variables. This would be akin to the non-interactive identities of multiple personality disorders where mental components are not integrated and separate minds with independent access to specific memories result within a shared physiology. Such mosaic patterns of mentality may explain a variety of supernatural phenomena and persistent belief in localized "spirit" forms. Certainly the agricultural achievements of Findhorn's devas resemble this notion, as do legends of power places and geographic energy points.

Any search to verify the existence of such a form of consciousness must result in a denial of objective status. Since the observer's presence is a further component of the total mental system under observation, interaction is not a matter of choice. The issue becomes: how shall the quality of interaction proceed such that the observer's awareness of the inclusive system is also self-referential for all components? The limitation of most interspecies communication research derives from a denial of this interactive imperative. Attempts to teach another life form human language constructs quickly become ludicrous outside of the higher primates. Likewise, science has only provided small clues to how we might emulate the communication logics of other life forms: animals too often behave in accordance with the controlled expectations of the laboratory. This itself suggests our inseparability from the larger mental structures we attempt to observe. If evidence of the alien mind of another species is to be respected, then every communicative instance demands a unique system appropriate to the demands of its unique context. Science denies the methodology of interaction in its pursuit of objectivity but science cannot be the only form of verity to which we supplicate our knowings. Even science shares a common origin in other mythologies which based their knowledge upon an interactive foundation. The deep recesses of the individual mind were felt to be shared by both the collective tribe and animal spirits whose lives were intermeshed into the daily fabric of life. There are of course diverse cultural examples where belief

in possession by and communication with animals and their spirits is a dominant reality. As Gary Snyder points out:

"One religious tradition of this communion with nature which has survived into historic Western times is what has been called Witchcraft. The antlered and pelted figure on the cave wall of Trois Freres, a Shaman-dancer-poet, is a prototype of both Shiva and the Devil."¹⁵

These religious traditions are evidence of something more than remnants of a naive descriptive language for the overwhelming power of these realities. They are more than desperate attempts to make sense of an awesome world. Such mythologies are the linguistic tracings of the larger mental structures through which we have collectively wandered. Science and philosophy merely added another level to that spiral. Religion, science, philosophy, and art all emerged from a common origin in the interconnected transformations of speech, tool making and hunting magic.

If there is an evolutionary continuity to communication behavior then the uniqueness of human speech may have arisen from the proto-typical seeds of a progenitor primate. This is precisely what John Gribbin and Jeremy Cherfas have proposed from analysis of the research into comparative molecular genetics performed by Vincent Sarich and Allan Wilson.¹⁶ Gribbin and Cherfas demonstrate that the genetic similarities between Apes, Chimpanzees, and humans suggest that they all branched from a common ancestor which may have been quite man-like. Thus, the peculiar cognitive abilities of humans, resultant from our speech capability, are an elaboration of traits resident in this now-extinct primate. The experiments of Premarck, Patterson, Terrace, Rumbaugh and the Gardners, which demonstrate the communicative and potential language acquisition skills of various apes, may actually be "plugging" into vestigial traits from this same primate ancestor. These particular characteristics probably proved less useful for the environmental adaptations

which the other apes were forced to evolve but were especially advantageous for continuation of the hominid line.

Gordon Hewes has speculated that even though Neanderthals lacked a vocal tract capable of all the articulations of modern speech they nevertheless managed tasks requiring productive language such as social hunting, tool making, and burial of the dead.¹⁷ One explanation is that they utilized gestural languages of sufficient complexity to qualify as a productive system. This raises the possibility that speech evolved from gesture and certainly the recent research into apes acquiring sign language reinforces the supposition that early hominids possessed sufficient mental prowess to develop language before the actual physical ability of speech.

Bronowski has suggested that the inability of the higher primates to oxidize uric acid from our brain cells may have resulted in the lengthening of some direct response paths.¹⁸ The consequent delay in response to stimuli may be responsible for a greater capacity to give attention to detail and for generalized curiosity. Since uric acid is a by-product of the digestion of nucleoproteins, the increased consumption of animal protein might have pushed this acid accumulation beyond that of the other primates. This event would have gone hand-in-hand with the language evolution necessitated by social hunting pushing us into the realm of a speech modulated reality with its consequent compression of self-referential feedback loops. The carnivorous impulse may be intimately connected to our "speech alienation" from the eco-systemic mind.

Robert Eisler's classic study of Lycanthropy suggests something similar to explain some forms of aberrant human violence and psychosis. He proposed that radical dietary changes in early hominids from herbivorous to omnivorous came about through changes in climate and terrain. A resultant psychic scarring retained in our "ancestral memories" generated a sense of guilt at having to kill to survive. Eisler documents in great detail the archetypal myths of werewolves in cultures throughout the

world. He further explains Lycanthropy as "throwbacks to atavistic behavior" where the ancestral memory bursts forth to dominate individual or group behavior.¹⁹

These ideas in some ways anticipate the MacLean-Papez theory of emotions which states that insufficient neural wiring between the human neo-cortex and the more archaic mammalian and reptilian brain parts has resulted in a 'schizophysiology': three separate mental structures vying for control of the human organism.²⁰ If the preconscious mammalian component of a larger eco-systemic mind remains intact within us then perhaps its drive towards reunion with that mental structure also remains intact. It may also function intermittently and unpredictably in the sense of Eisler's atavistic throwbacks. The current wholesale destruction of our wilderness environment is also a destruction of such eco-systemic minds which our pre-conscious physiology yearns for. What can no longer be fulfilled through interaction with other life forms is fulfilled through the multiple interaction of such mammalian components (*i.e.*, between individual humans) to generate the pack instinct of crowd consciousness. Fear of such irrational potential within ourselves has forced attempts to "tame the beast" through self-domestication and the eradication of these eco-systemic mental structures. It is denial of the components of our physiology which "call" us back to our reptilian and mammalian origins. We attempt to destroy what we fear inside us by destroying what is outside us. Not only has this poisoned the whole system but our drive to domesticate ourselves and our environment has destroyed the habitat for a part of ourselves which still surges forth to live. The demonic reasserts itself wherever it is sublimated and each time its "bloodlust" is only more desperate.

Is it possible to establish new "neural mappings" which allow for greater interaction between these levels of the mind, widening the narrow channel of consciousness to include a comprehensive understanding of our animal side? This is both an internal and external awakening. Communication with animals is not merely for the sake of deciphering communication codes between

species. It is a reconciliation with the animal parts of ourselves which persist within the deep structure of our physiology. Learning not to fear that part of ourselves is also a learning of tolerance and love for other life forms. It is allowing the "beast" to co-exist in peace and intrinsic beauty.

The desire to acknowledge this beauty has also been an integral part of our cultural history. Attempts to offset our carnivorous guilt with the need to feel more complete identity with the hunted can be seen as the intuitive balancing of the emerging individual systemic mind with the eco-systemic mind. Hunting magic probably originated from the wearing of pelts for camouflage. The hunt's efficiency could be increased by the closer proximity achieved to the prey, but this increase in the hunter's prowess could not diminish the hunter's guilt at having to kill. The donning of the hunted animal's skin thus took on other more mythically potent functions including ritual emulation and communion with the animal's spirit. It is this same process of rationalization which gave impetus to art-making through miming of animal sounds and movement. The flexible capability of the human vocal apparatus to mimic sound from the environment, including other species, suggests that some sort of onomatopoeic interaction was seminal in the evolution of human speech. Imitative processes are still resident in the communicative vocabularies of a variety of tribal peoples where the sounds of birds and other animals are not only used to manipulate the environment, but also as a part of daily interpersonal communication and music making. Obviously in such realities the aural sensory channel must be highly refined even to a point of dominance. However, with the dramatic cultural changes necessitated by alphabetic writing came a shift from aural to visual dominance which permanently altered our relationship to both the external physical environment and our own bodies.

Along with this shift, music/dance were relegated to vestiges of a now irrelevant hunting magic. The animal components of our mental structure, however, still required sensory stimulation

analogous to the interconnectedness to wilderness now left behind. The old adage, "music soothes the savage beast" [*sic*] is more in reference to our physiological makeup and the need to allow integration of these other levels of mind into our social and communicative spheres. For generations music has been used to both sublimate and inflame our animal states, but more recently has evolved to attempt integration with our speech modulated realities: widening the window of consciousness to include these other levels of mind.

As these realities evolved, consciousness became adept at suppressing other aspects of the systemic mind and in constraining use of the body for communication. Music has reinforced, if even subliminally, a wider use of the body for communication behavior through its contrapuntalness and expressivity. It has kept alive certain neural mappings for these speech suppressed components of the systemic mind. As an escape valve it has channelled the overflow of our body expressivity into a communicative act which allows other levels of the mental structure to be resonated. Musicians have generated interactive mental structures analogous to the now truncated eco-systemic mind which may also fulfill a similar function within the deep structure of our individual physiologies.

This function also seems to have been readily exploited by a variety of social and political structures throughout history. The alliance of patronage and music, in a variety of guises, seems intimately connected to the fact that wealth and prestige generally guarantee satisfaction of needs associated with our instinctual nature. The consumer status of current popular music can also be seen in this light but with a slight reversal of function. The profits secured by disseminating essentially redundant sensory data which assuages the need for reinforcement of the systemic mind, are funnelled into corporate structures with vested interests in maintaining cultural stasis. Thus, in the eyes of these structures the highly redundant "products" of the music business must retain their role as cultural

outputs feeding societal needs in ways which do not allow us to know their consumptive purpose. Since commercial music is a manifested output of this corporate/cultural collusion, it can be used as a symptomatic barometer of current manifestations of how components of the systemic mind are manipulated. I certainly do not believe that industry executives are explicitly aware of this process but I do think that there is evidence to support the contention that it is precisely these mental components which are being fed for the purpose of maintaining a consumer base. Since the adolescent crowd ferment of many rock concerts certainly resembles the pre-verbal frenzy of other primate group interactions, it seems reasonable to assume that socially sanctioned outlets for a certain kind of usually suppressed physicality would be highly profitable.

The actual context of much commercial music betrays a more general cultural trend which has itself become explicit subject matter for a variety of popular musicians. Fascination with images associated with demonic archetypes point to this same need to stimulate archaic mental structures. This may also signify an enmasse manifestation of cognitive regression first intuited by general trends of twentieth century art: surrealism has found its way into the market place.

The typical audience response to the complexities of recent experimental musics as "meaningless" is an expected consequence of the more general incomprehensibility which art in this century has pushed towards. The edge of the cultural transformation upon which we are perched can be no less unsettling for a musical audience when predominate compositional ideologies, generally posed in opposition (*i.e.*, serialism verses indeterminacy), move toward the same statistical unintelligibility. More specifically the incomprehensibility of later twentieth century art to which I refer has much to do with its breakdown of syntactically-assumed/speech-modulated language constructs. For instance, the intermittent disassembling of syntactical structures in Joyce's *Finnegans Wake* achieves a mythic reality as a developmental

consequence of his earlier attempts to describe the richness of language imbedded in daily mental process. The transition from early to late Joyce is an ever-deepening exploration of an individual's larger systemic mind. *Finnegans Wake* begins to emulate music the deeper it penetrates the non-syntactical recesses of that mind. The result is a persistent challenge not only to the way we perceive literary structures but also to the familiar way in which the brain actually processes information.

Warren Burt has suggested that this same kind of confusing of primary sound classifiers in the brain (*i.e.*, speech, environmental sound, and music) has become the major issue of experimental music.²¹ In this sense experimental music can be contrasted with the 'cultural glue' function of commercial music only if it resides at the cutting edge of our perceptual capabilities. Temporary stimulation of the systemic mind by commercial musics seems to provide a limited distraction from our cultural repression but it is this aspect which is specifically exploited so as to maintain the equilibrium of the status-quo. However, the challenge to familiar syntactical realities offered by experimental work is thus an invitation to organization of radically different cultural organisms.

How these ideas actually function in the work of contemporary composers is best exemplified by two major figures who, while pursuing very different philosophical paths, have nevertheless explored quite similar regions of ideation. Kenneth Gaburo has tenaciously explored "language as music/music as language," focusing in depth upon the interaction of speech, music, and gesture. Indicating his regard for the mind/body as a contrapuntal whole-system, he states:

"First, no single mode of expression satisfies all that a particular idea requires,...I cannot express visually what I can acoustically. But suppose an idea requires both? Since I find it untenable that each could simply pursue a parallel course within a specific compositional space, my task would be to

*"blur" their 'distinctiveness,...their 'separateness' in favor of a more complex 'distinction' which includes both. "*²²

In a statement acknowledging his debt to oriental poetry and Joyce, John Cage discusses his own work as a composer/ poet exploring the possible dissolution of syntax:

*"Syntax, according to Norman O. Brown, is the arrangement of the army. As we move away from it, we demilitarize language. This demilitarization of language is conducted in many ways: a single language is pulverized; the boundaries between two or more languages are crossed; elements not strictly linguistic (graphic, musical) are introduced; etc. "*²³

I am fascinated by this similar interest in the breakdown of familiar linguistic structures and disciplines expressed by two vanguard composers generally associated with apposed compositional viewpoints. Since Cage is usually typified as attempting to reject human-made structures through indeterminate processes or by focusing on the sounds of the environment, in what ways can his concerns be connected to Gaburo's intense interest in self-expression and human made systems? Ultimately both men are passionately concerned with art as a phenomenon that truly resides in the world and not as a distraction from it. This demands that art be respected as a vehicle for social change which grows as a participatory transforming agent from that society as a whole. Foremost in that transformation is the responsibility of the individual to creatively and actively put forth alternatives to the existing order. Regardless of their definite philosophical differences (which I do not mean to trivialize) both Gaburo and Cage address this issue of expanding our linguistic resources as a means to expand our perceptual and social realities. They are leaders in the continuation of a more general trend toward reaffirming the total systemic mentality latent in our imaginative potential.

I do not wish to imply that our partial regression from syntactical speech should result in its abandonment. It is precisely syntax that enabled the productive capacity of our digital speech and consciousness. But I want to point out that we have approached a condition similar to Koestler's "draw-back-to-leap": where such a regression may be evidence of some next evolutionary change. We can hope that the result will be a resonant interconnection of the multiple levels of mind where consciousness reflects upon the wholeness of this larger mental system. As William Irwin Thompson says:

*"Ontogeny recapitulates phylogeny, and before we can go on to the next level of evolution, we must go over in full consciousness the places we have travelled in unconsciousness."*²⁴

Because it necessitates the interaction of multiple levels of mind, I submit that music-making remains one of our most powerful tools for self-investigation: consciousness and un-consciousness resonantly "aware;" but it is also true that this awareness contributes to an understanding of how "self" dissolves into the external pathways of a larger mental structure. Inclusive in this system are other forms of life with which, imbedded in the physiological traces of an evolutionary continuity, we share a mutual dependence for survival of the whole and its parts.

NOTES:

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