

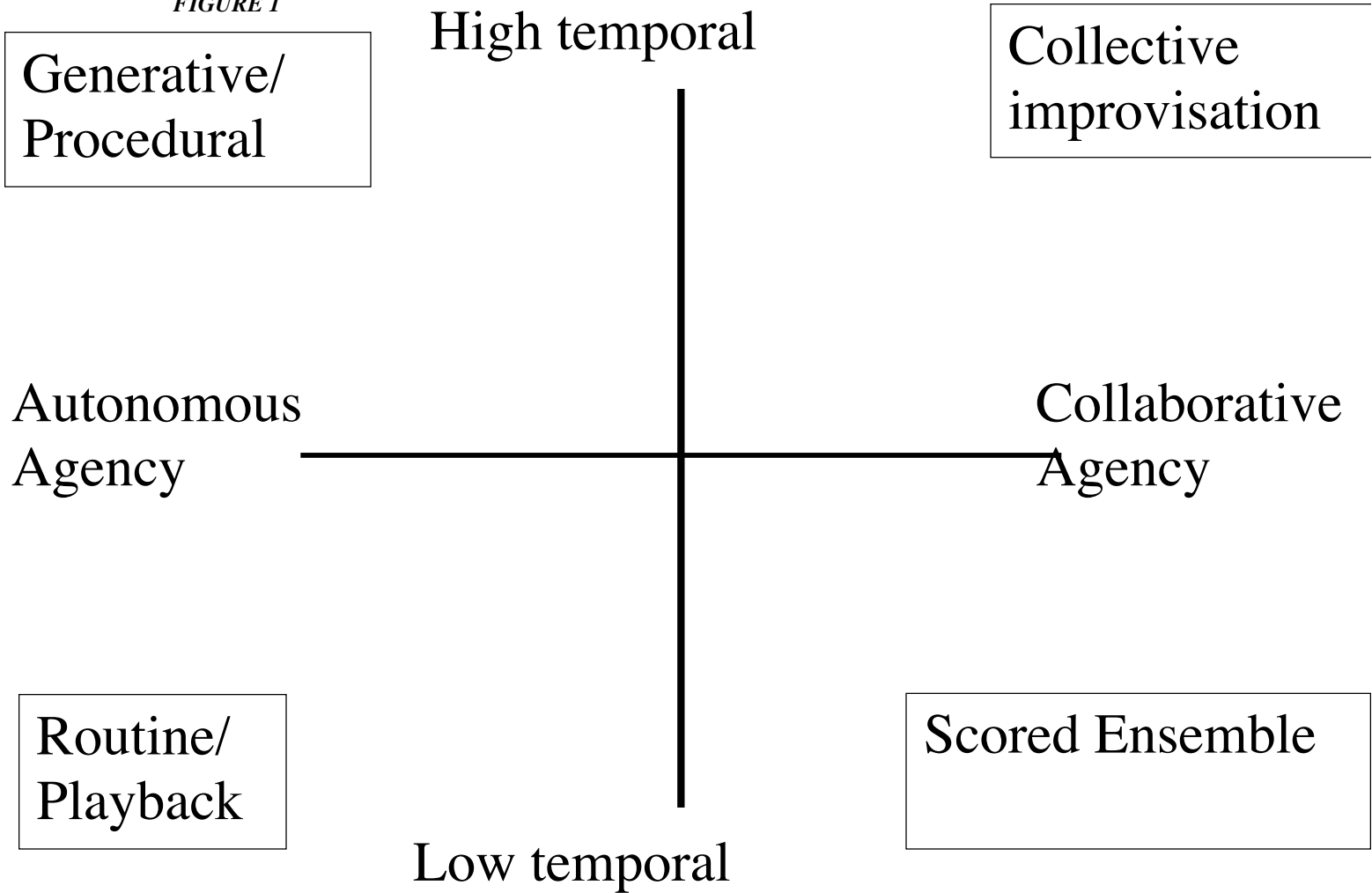
Time, Intensity and Affect in Recent Media Art Michael Century

(first presented at College Art Association national conference 2006, and published by Wood Street Gallery, Pittsburgh, in Can we fall in love with a machine, edited by Claudia Hart.)

It is commonplace now to concede that complex agency resides in a range of new media art works. The way this propensity to act, and to be acted on, is manifested varies widely and there is little basis for comparison between, for instance, reactive environments, synthetic characters, artificial musicians, network creations, and so on. **[SLIDE 1]** In introducing the two works I am going to discuss today, I would like to propose a structural-formal approach, drawn on a theory that differentiates two important dimensions of behavior/action: the degree of temporal intensity, and relative autonomous versus collaborative construction of an agent. After sketching out the terms of the theory, I will then apply them to two contrasting multi-agent art works whose power to evoke affects may be accounted for in terms of movement, or passages between differing intensity of temporal states and autonomous vs. collaborative agency.

The first formal dimension is that of temporal intensity, by which is meant the degrees of freedom or numbers of choices available to an agent at a given instant. Think of this as the “virtual co-presence of potentialities”. Intensity is the term here proposed to differentiate between the store/playback, stimulus/response behavior of deterministic works, and generative or quasi-creative behaviors that offer novel non-prescribed responses to a wide range of input actions. The very breadth of possible responses to more or less prescribed action is designated “intensity”.¹

FIGURE 1



SW Autonomous, Low intensity. Pre-Scripted performance, playback mode of machinic action.

NW Autonomous High Intensity. Generative performance, single statement (grouped as single or multiple agents)

NE Collaborative High Intensity. Mutual simultaneous influence. “steering” rather than precise determination. Mesh. Transduction

SE Collaboration, Low Intensity. Scored ensemble performance. Store & retrieve, Stimulus/Response model of “interactivity”

The second formal dimension is defined by whether the work’s agents are

autonomous or collaborative. Autonomous figures, characters, or agents, act on their own accord, in isolation from factors outside their own more or less provisional boundaries. They ignore external probes, and are capable of pursuing their own self-controlled programs. Collaborative agents, in contrast, are able to both take account of and respond to others, whether that response is instantaneous or not. They are interdependent, whether with other programs or people.

Crossing the two dimensions creates a theoretical space of four possible types: works that implement high and low intensity autonomous agencies, and those with high and low intensity collaborative ones. The lower left-hand, low intensity autonomous quadrant is occupied by agents capable of standalone pre-scripted and/or recorded action only. For instance: linear audio visual media, which cannot be varied in playback, only paused or stopped. A mechanical music box might be a case in point.

The upper-left, high intensity autonomous quadrant is for works containing agencies with complex procedural and/or generative properties. Outcomes of their actions are not prescribed, but emergent; the same starting conditions might therefore lead to different end states. At the limit again, these agents ignore outside stimuli; for instance: consider “The Game of Life”, the cellular automata program, as an example. It may only be paused or stopped, though the degree of autonomy of its agents may best be conceived as a continuum.

The upper right, high intensity collaborative quadrant is for works with multiple agents mutually influencing one another (human-machine or machine-machine). A capacity to sometimes listen and sometimes ignore external stimuli would place an agent somewhere in the middle between the purely autonomous and the purely collaborative. At this limit, no behavior occurs at all without the meshing or entrainment of separate agents amongst themselves. This is the condition of a bi- or multi-directional, temporally dense interchange. Not accidentally, this kind of engagement by agents with one another would appear uncannily close to affective relations between people, or between people and artificial agents.

Finally, the lower right, low-intensity collaborative quadrant contains pre-scripted agents (unable to self-modify on the fly) connected to one another via simple on-off message passing. For instance, consider any nonadaptive complex machine, like a Taylorized-factory, as an example of this type of relationship between mechanical agencies. As before, at the mid point between low and high intensity collaboration, are hybrids in which some agents may have greater innovatory freedom than others. For example, in a computer-music interaction involving a pre-recorded segment, triggering this segment alone would be simple low intensity action, although the segment itself could contain some elements of interpretation or improvisation.

The value of this analytic schema is not just to provide a snapshot of a given state, but to map the passage between various states and the relative degrees of their actual expression in real works of interactive art. Imagine what happens when a

low-intensity autonomous agent artfully becomes generative: such a passage enacts the emergence of emergence. In the two works that will be examined here, the transformations will not surprisingly be between the high intensity collaborative quadrant and its two neighbors. In one case, the piece shows a passage to low intensity collaboration, from multiplicity to unity, or crowd to communion. The second piece enacts the passage, indeed oscillation, between individual and collective expression.²

n-Cha(n)t by David Rokeby is a multimedia installation commissioned by the Banff Center in 2001. It received the Golden Nica award for interactive art in 2002 at Ars Electronica, and has been shown at several important media art festivals since then. It consists of 7 networked computers, hanging with screens visible at the visitor's height, plus directional microphones and speakers for each. The computers each have a language ability, made up of thousands of words, links, and grammatical rules. The links are not strictly dictionary or thesaurus based; Rokeby has built an idiosyncratic "object recognizer", from his previous work *The Giver of Names*, comprising what critic Margaret Morse has called a "metaphorically linked associative database of words and ideas"³. Each is programmed to seek verbal communion – speaking in unison – with its neighbors. A visitor approaching any computer and speaking to it perturbs the state of unison, of communal repose. When a given computer is ready for listening to new speech, this state is indicated with a hand cupped to the ear; when it is busy processing, the ear is covered over. Once received, according to Rokeby, the single computer "takes in the information

and thinks about it, tries to make some sense and contemplate the words you provided to it".⁴

Rokeby speaks of this analysis-response process in terms of meanings "radiating"⁵ through an associative database, finding resonance in synonyms and similar sounding words. The result is a new sentence, which "riffs" off the one it has heard and processed, but is more commentary or extension than it is a response or attempt at simulated conversation. This new sentence is spoken and thus the individual stands apart from its like-sounding neighbors. Rokeby goes on: "it also starts sharing its information with one or two of its neighbors. So it becomes a dissident".⁶ This sharing is meant to be persuasive – as the new phrases radiate through the neighbors language base, they too shift to resemble and eventually mimic the new phrases. Gradually, as this radiation spreads through the network of seven, n-Cha(n)t brings the dissension toward consensus. From the polyphony of separate individuals, the seven agents gradually gain coherence.

As noted in the Dutch Electronic Arts Festival 2004 catalog, "it is hard not to read this work through a political lens. The computers communicate and interact with each other, and seem to make up a perfectly closed and harmonious communal system. They could go on chanting forever, yet in comes the human visitor/intruder and disturbs the voice of unison."⁷ Taking in the speech of the visitor, opening the outsider to the inner circle, does not trigger a simple stimulus-response reaction, but oblique, somewhat related but not exactly coherent associations. This propagates

through the system and the resulting negotiations ultimately bring the system back to its communalist equilibrium, when all are intoning the same or nearly the same phrases. Again, from the DEAF catalog, “becoming intimate with the system is not so clear-cut; any community - whether machinic or human - has its defense mechanisms ready to fend off a threat to the consensus or status quo. Concurrently, every system in equilibrium holds the promise of becoming imbalanced by having its defenses punctured”.

At its state of maximum activation, with seven simultaneous different inputs just received, the work momentarily occupies a state of high-intensity collaboration; the form-process of the work is to traverse the passage high to low-intensity collaboration, when the polyphony turns into monophony. Yet this is a highly monitored unison, in which the members, once provoked back into individualism, are at the ready to bring their neighbors into line. The oscillation is asymmetrical, with the period of consensus-making gradual and lingering, but the effect of the new stimulus instantaneous.

n-Cha(n)t is an elegiac work, rehearsing forever the smoothing of differences, the passage from multiplicity to unity. One should not read too much into the creator’s words, but it is striking indeed that he invokes childhood memories of the sound and dynamics of prayer – the somewhat synchronized, somewhat disparate sound of forgotten verses and haphazard timing.⁸ Rokeby also declares that his “artificial subjective entities” only mimic the “more mechanical and cognitive” functions of

human life experience. Deliberately eschewing the tropes of mechanical life-making and emotional leveling with machines, Rokeby instead insists that his work “helps to “differentiate between what part of what we do we currently understand and can formalize, and what parts of what we do are still cloaked in mystery and need much deeper exploration.”⁹

If not a parable of faith, then a cautionary tale about how far we makers of artificial subjectivities think we have come; rather than showing off the uncanny ‘smartness’, the cognitive conversational prowess of a machine, *n-Cha(n)t* signifies its agents are able only to bear a limited amount of reality, to which they can indeed respond quirky originality; but their programmed instinct is not toward dialogue or the reciprocity. Rather, the work enacts “emergent community behaviors [that] don’t reveal themselves in a second and won’t respond to the click of a mouse.” The difficulty, Rokeby asserts, is that “you as a visitor are not a god, but just a visitor to a community that has its own agenda.”¹⁰ Moreover “the “communal chant is chilling, because the visitor is excluded from their united power”¹¹. It is also enchanting, as we witness the gradual negotiated coming-to-rest of plural individualism in the gentle, slightly-blurred multivocal unison of chant.

Voyager (1986-88) by George Lewis is an improvising and composing system capable of playing alone or in close dialogue with skilled human improvisers. In terms of the theory presented in this paper, it spans and oscillates between the realms of autonomous and collaborative performance involving human and machine

agents. In *Voyager*, “an improviser interacts with a large group of “virtual improvisers”. A computer program analyses aspects of an improviser’s musical behavior in real time, using that analysis to guide an automatic composing program that generates complex orchestral responses to the musician’s playing”¹² *Voyager* is itself a high intensity collaborative system, since it is made up of 64 players, and these can play generative music autonomously; at a higher level, the totality can be notionally black-boxed in a dialogue with a human improviser, who communicates with the program solely through sound, not pre-set buttons or by progressing through positions in stored scores. Like Rokeby’s *n-Cha(n)t*, this is the antithesis of trigger-based mouse-clicking interactivity. The program follows dozens of musical features of the human performance, to derive and determine what it might play itself. This is an informing, shaping influence, not purely deterministic. For Lewis, *Voyager* is not an instrument in the conventional sense; it cannot be played predictably. Nothing guarantees the same input will engender an identical response. Importantly, “*Voyager’s* response to input has several modes, from complete communion to utter indifference”. The absence of input from the human is taken by *Voyager* to mean that it has a solo. “This means that *Voyager* does not need to have real-time human input to generate music”.¹³

Voyager was created for performance with a particular kind of musical improviser, one fluent in improvising within what Lewis calls an “aesthetic of multidominance”. The term is derived from observations about African-American rather than European musical styles, in which thick, densely textured layers of separate sounds are

valorized, not put down as “noise” or “chaos”. Crucial to the notion of multidominance is the possibility that multiple sound groupings can be playing at once, each following their own beat or meter; they thus may move in or out of synchronicity.¹⁴

The live player may stimulate responses in kind from *Voyager* (e.g. 1 Duo #8), by (for instance) playing loud, fast and with great intensity. But in split seconds, *Voyager* can and does diverge and play its own separate extensions and embellishments, unprovoked by the live player. (e.g. 2) Strictly synchronized events are noticeable at times, but these moments are fleeting too (e.g. 3); the program is not made to engender synchronization as such, but a range of connections that spans both synchronized and non-synchronized rhythm. In terms of the opening theory in this paper, *Voyager* is able to switch instantaneously and fluently from autonomous (or more properly, multiautonomous) high intensity performance to collaboration with a human performer.

Lewis has called the nature of this collaboration “emotional transduction”. By this phrase he designates that “the emotional state of the improviser may be mirrored in the computer partner, even if the actual material played by the computer does not preserve pitch, duration, or morphological structures found in the input”.¹⁵ At this high macro level of gesture, behavior specification may be tuned, using percentages, for the styles and proclivities of particular improvisers. Emotional transduction, following Lewis, falls at the limit of high intensity collaboration, as it

presumes a multiplicity of input variables being taken onboard and reacted to at a global level. Lewis suggests that size and complexity of a system are needed to generate sufficient detail to bring about this kind of high level inter-agent emotional transfer.¹⁶

Just as Rokeby's artistry lies in the repeated elegant, elegiac dramatization of communion passing from high to low intensity speech of collaborative agents, so Lewis' achievement in *Voyager* lies in the fluidity of its passages between autonomy and collaborative improvisation, which deconstructs – in a tradition he attributes to African American antecedents – the usual stark contrast between “individual expression and collective consciousness”.

If, as Massumi has suggested, affect *is* temporal intensity, we may perhaps speak of emotion as the residue of a complexly affective artwork. In the two examples here considered, David Rokeby engages the interactor by a kind of paradoxical exclusion: only by speaking, then getting out of the way to listen, can the sonorous effect of emergent chant be heard. George Lewis demonstrates that systems with sufficient complexity and detail are capable of communing with the emotional state of a fiercely capable musician. The reward of multidominance in *Voyager* is the ability to be both independent from and fused with another's agency; differences are not necessarily – though they may be – reduced to similars. In terms of the compelling crafting of affect, both are stretching the outer boundaries of the range of human behavior that the machine can respond to and comment upon. Both works propose

a sophisticated affective engagement with their interactors and audiences. This is an affect that has little to do with anthropomorphized emotion. It owes its wide range to the temporal density of both works knowledge bases, whether expressed as associative webs or as multiple musical variables. This may be like the relation of love in the intensity of its transfer of emotion between agents, performers, and the audiences that come together around their complex agency.

¹ The concept of temporal intensity might be simply introduced by considering the case of motion in the visual realm. Imagine a rigid object that moves through space unchanging with a fluid object that metamorphoses at each step of the time scale. The first, with a low ratio of internal transformation to displacement through space, exhibits low temporal intensity; the second, with a high ratio of transformation to displacement, has high temporal intensity.

² Massumi in his book *Parables of the Virtual* (Duke University Press: 1992) designates affect, or the affective, as intensity. He goes on to differentiate emotion and affect.

“Emotion and affect – if affect is intensity – follow different logics and pertain to different orders”.

³ Margaret Morse, *Murmurs, Chants and Biopolitics: David Rokeby*, in Sunshine and Shroud: Cyborg Bodies and the Collective and Personal Self

http://www.medienkunstnetz.de/themes/cyborg_bodies/collective_bodies/14/

⁴ *n-cha(n)t - The Architecture of Language in a Networked Soundspace, David Rokeby in Conversation with Sabine Breitsamer*,

http://www.swr.de/swr2/audiohyperspace/engl_version/interview/rokeby.html

⁵ Dot Tuer *Disembodied States: Vision, the Body and the Virtual* no date

<http://homepage.mac.com/davidrokeby/Tuer.html>.

⁶ Interview, Breitsamer, *ibid*

⁷ Catalog, Dutch Electronic Arts Festival, 2004

<http://www.deaf04.nl/deaf04/program/projects/item.sxml?uri=urn:v2:deaf04:rss:projects.rss:040929104014-nchant>

⁸ Rokeby artist statement, at <http://homepage.mac.com/davidrokeby/nchant.html>

⁹ <http://www.wtn.net/2004/bio307.html>

¹⁰ Interview, Breitsamer, *ibid*

¹¹ Morse in Medienkunst net, *ibid*

¹² George E. Lewis “Interacting with Latter-Day Musical Automata”, *Contemporary Music Review*, 1999, Vol 18, Part 3, p103

¹³ *ibid* 36

¹⁴ George E. Lewis *Two Many Notes: Computers, Complexity and Culture in “Voyager”*, *Leonardo Music Journal*, 2000, Vol 10, pp 34-35

¹⁵ Lewis “Interacting with Latter-Day Musical Automata”, 106

¹⁶ Lewis “Interacting with Latter-Day Musical Automata”, 106. In Lewis’ words, “Several different sonic behavior groupings, or ensembles, may be active simultaneously, moving in and out of metric synchronicity, with no necessary arithmetic correlation between the strongly discursive layers of multirhythm.”