HIDDEN CITY: 'BEING WITH' IN IMPROVISED PERFORMANCE

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ABSTRACT

This paper explores group improvisation and interaction through the concept of *Mitsein* (being with). The activities of the electro-acoustic ensemble 'Hidden City' are discussed, with emphasis on the way the group's approach to improvisation has expanded through the use of technology to incorporate not only the ensemble members, but collaborative machines and the audience.

1. INTRODUCTION

'Hidden City' is an ensemble that combines a wide range of interests including Free Improvisation, AI, Networked Performance, live Circuit Bending and Chiptune; often simultaneously in a given performance. Central to the group's practice is improvisation, with performances often exploring the different ways that we interact with technology and cope with media overload. A common thread through the group's performances has been the use of the ENSEMBLE system, an interactive computer music environment developed by Harrald that enables improvising musicians to interact with a virtual ensemble of distributed agents in live performance. The system is able to manipulate both audio and visuals in real-time, and at times reinforces, and at others subverts the musical directions of the group. Interacting with the software has certainly broadened Hidden City's concept of collaboration, and approach to improvisatory performance.

1.1. Improvisation

Improvisatory performance can be conceived of as a set of more or less consciously motivated actions, or intending acts. At one extreme is the kind of performance represented by Surrealist automatic writing, characterized by a total lack of conscious intent, except for the initial decision to engage in it. No doubt there are forms of musical improvisation that parallel automatic writing in the abandonment of conscious intending acts. At the other extreme are forms of improvisation that are constrained by pre-determined structures, materials or stylistic conventions. Even the most structured forms of musical improvisation nonetheless require some degree of intuitive engagement in order to spring to life. For in the end improvisation is about life itself, in which we are called upon to act in response to ever-changing situations by

making decisions that may in part be based on conscious and rational choice but equally involve –and in fact, for successful living, require – the use of intuition and emotion. We are well aware of the fate of the most elaborately preconceived plans of both rodents and humans when confronted with the realities of life ruled as much (or more) by chance and the irrational choices of others as by any rational order.

1.2. Strategy

Improvisatory strategies can be described as (more or less) consciously intended frameworks for (more or less) conscious intending acts. 'Strategy', with its tactical and militaristic connotations, suggests a rational and calculated course of action. While that may be the case in some circumstances and for some individuals, the reality is that many improvising musicians experience what here is termed strategy as something less clearly defined, as an attitude, a mood or an emotion, or some combination of these. For experienced improvisers, characteristic strategies are patterns of behavior that evolved over years of experience in improvisatory performance.

In situations where structural or conventional constraints are placed on improvisatory practice, strategies must necessarily engage with those constraints in constructive ways. The interaction of strategy and constraints may lead to the 'discovery' of material or ideas that could not be found in any other way. In situations with few or no conscious constraints (as Kandinsky observed, limitations are always present whether we think of them or not) [8], improvisatory strategies assume a somewhat different significance. In group situations, improvisatory strategies become an essential feature of social interaction.

1.3. The Primacy Of 'Being With'

Aside from such an extreme case, group improvisation is an acknowledgement in action of the primacy of 'being-with' (*Mitsein*)[1] over essence or other modes of being. One's own existence in the group is defined by one's

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[1] *Mitsein* (being-with), a term introduced into philosophy by Martin Heidegger, signifying that human 'Being' (*Dasein*, 'being-there') is essentially social, defined by roles acted out in the social sphere. "Roles do not exist in isolation…the possible roles gain their meaning from a field of contrasts in which each role is related to other roles within the social systems in which they are available as possibilities." [5]

relationship to others. The satisfactory participation in group improvisation requires listening to and accommodating the actions of others. It assumes respect for others that is manifested in the allowance of space for other participants to engage with the actions of the group on an equal basis. Within the condition of mutual respect, individual participants may be free to engage in improvisatory strategies of various kinds. The strategies adopted provide frameworks for interaction; they define the nature of 'being with' for each member of the group. The resulting performance can be considered a collaborative intending act by the members of the ensemble. This collaborative intending act is more than the simple sum of the strategies of the individuals. 'Being with' as a member of the ensemble involves an essential 'with'[2]. Individual actions occur within a constantly evolving framework, motivated by commitment to group objectives, mutual respect between the participants, and sensitivity to the musical context. The group is best viewed as a plural subject rather than an aggregation of individuals.

1.4. A Social Setting

Group improvisation often occurs in a larger social setting, in the presence of an audience. The recording of an improvisation and its subsequent dissemination widens the audience to include those who were not present at the live performance. In the case of various forms of distributed group improvisation, there may be no definitive version of the performance and the audience may be experience it in a variety of different forms at different times and in different places. Although often neglected in studies of improvisatory performance, the 'being with' of the group as a whole must be understood not only in interaction of its members, but also in its 'being with' the audience, however widely the latter is defined. The audience should be understood not as a fundamentally different category, but as participants in the performance, for the duration of which their own 'being with' is shared with other members of the audience and also with the performers.

2. ENSEMBLE

The 'ENSEMBLE' system used by Hidden City in its performances is notable for its modeling of improvisatory behavior rather than musical structures or processes. Through a competitive 'Iterated Prisoner's Dilemma' (IPD) tournament inspired by the work of Robert Axelrod [1], an ensemble of distributed agents 'make decisions' based on a set of possible strategies, understood as frameworks for action. These strategies mimic the

strategies within which the intending acts of human improvising musicians are framed.

2.1. The Prisoner's Dilemma

Through the initial stages of development, several algorithms were considered for ENSEMBLE. As the premise of the system was to model the musical interactions between improvisers without modeling their expert knowledge or cultural background, the Iterated Prisoner's Dilemma seemed an obvious choice with its well proven ability to model disparate social situations without the need to address the details [2]. The writings of George Lewis added extra weight to this idea, suggesting that the emergence of structure in improvised music occurs in much the same way as structure emerges in our every day lives: "we interact with our environment, navigating through time, place and situation, both creating and discovering form" [9]. If all emotional connotations are removed from the dilemma, it can be described as follows: two people have a choice to cooperate with one another or not. If both cooperate, both players receive a reward. If one cooperates and the other does not, the defector receives a bigger reward while the sucker receives nothing. If both players defect against one another, both receive a small reward; less than if they had cooperated. The game explores the conflicts that occur in real life between each player's selfish desire to pursue what is in their own best interests and the necessity to advance the same need in the other player through cooperation and compromise [3].

2.2. System Development

ENSEMBLE was developed through various versions that were created to meet the needs of different commissions and performance situations. Starting out as an algorithmic composition system that generated new works through the 'improvisations' of the ensemble of agents, the system subsequently evolved into a real-time composition system to be used in installations, followed by the interactive environment as used by Hidden City. The system itself is modular in nature, allowing for rapid development of new capabilities. All versions are based around a common IPD engine, built in Cycling 74's MaxMSP environment. The modular structure of the program can be seen in Figure 1.

The IPD engine is a virtual ensemble consisting of eight agents. The agents' environment is made up of their interactions and they communicate solely through the sequence of their own behavior. The current system uses deterministic strategies, which are set prior to the first round and once the initial conditions of the system are set-up, the agents are autonomous. The Iterated Prisoner's Dilemma is implemented as a competitive model whereby the agents interact in randomly selected pairs and are rewarded points depending on the outcomes of their interactions.

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[2] "Furthermore, *Dasein* is essentially *Mitdasein*. From the outset *Mitsein* is essential for it: a being-with which is not a collection of things, but an essential with." [10]
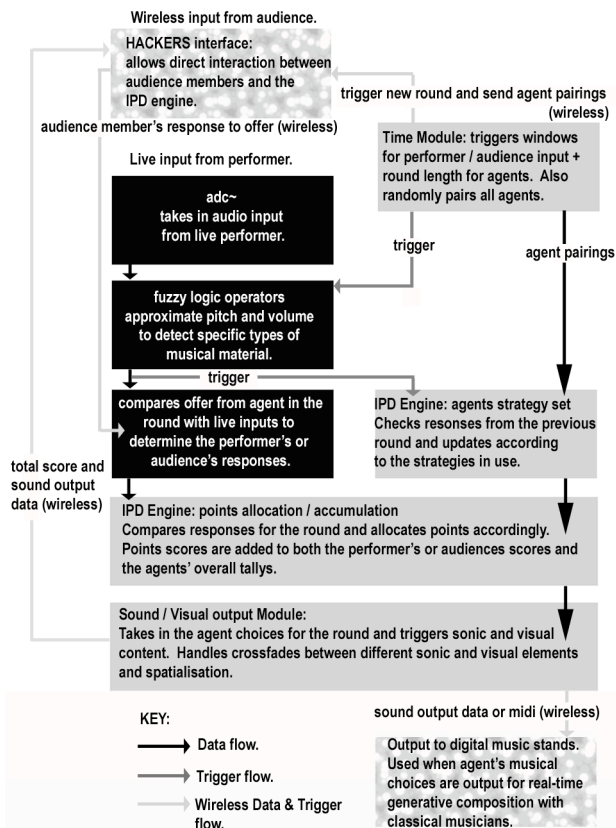
Figure 1. Modular structure of the ENSEMBLE system when used with pitch tracking of a live performer, audience interaction and real-time output to digital music stands via wireless multicasting.

Several aspects of the model are not typical of other IPD systems to allow the agents behavior to more closely mimic a group of interacting musicians. For example, although interactions between agents in each round occur on a local level between pairs of agents, the agents can 'see' the outcomes of all the other interactions within the group and 'hear' the global musical surface as it unfolds. This information informs the agents' behavior in the next round. The agents also have a short memory that consists only of their experiences in the previous round. While this appears very much like a neighborhood within a Cellular Automaton, unlike a typical CA the members of the group do not interact with one another via the same rules. Each member behaves according to individual strategies. Making global information available to the agents allows them to mimic the way that performers at times listen to the whole ensemble, but then switch their focus to individual members as the performance unfolds.

Musically, through cooperation the agents reinforce previously introduced musical materials, while defection results in a random selection of new materials. This mapping enables members of the virtual ensemble to reinforce an individual agent's musical initiatives through cooperation or ignore them through defection, mirroring

the musical dilemma facing real-life (human) improvisers. In a live performance, performers are able to interact directly with the IPD engine via a pitch tracker, which transforms performer's input into higher-level sound types that can be understood by the virtual ensemble. In this situation, the system is able to both work with, and branch out against the musical initiatives of the live ensemble, creating a sense of active collaboration. A comprehensive overview of ENSEMBLE can be found in [6 & 7].

2.3. Conscious Intention?

The response of human musicians to the actions of the agents can be characterized as the attribution to the agents of intentionality that mimics human intending acts. By recognizing that the agents behave in ways that resemble human intentionality, the performers are able to make use of the system for musical purposes; in fact, it appears to be a necessary condition that they do so. It is not necessary to believe that the agents possess any form of intentionality in order to perform with them; it is only necessary to act as if they did [cf. 4].

Just as in the interaction with human improvisers one becomes aware more or less consciously of the strategies that other individuals employ in the group interactions – without necessarily questioning whether those strategies are being consciously determined by the individuals concerned – so one also becomes aware after a time of the strategies implemented by the agents of the program. This awareness may be used – once again, just as in interactions with human musicians – to anticipate future actions and so contribute to the overall shaping of the performance. Any judgment by the musicians' concerning the intentionality of the agents is put 'on hold'; thus the agents become part of the 'being with' of the ensemble. In stand-alone mode the agents of ENSEMBLE do not constitute a plural subject – their collective actions are the simple sum of individual actions as determined by the system. In performance with Hidden City, the agents become 'honorary' members of the plural subject that is the group, their contribution mediated by their creator (Harrald): his commitment to the shared objectives of the group is extended to the agents. At the same time his 'being with' the ensemble is facilitated through the implementation of the ENSEMBLE program.

3. HACKERS

'Hackers' is a musical game that allows audience members to interact directly with ENSEMBLE across a wireless network. Through playing the game, audience members compete with the virtual ensemble of agents (and each other) for control of the sounds Hidden City have at their disposal; essentially 'hacking' into the live performance.

Figure 2. Screenshot of the 'Hackers' interface.

3.1. 'Being With' The Audience

The possibility of direct audience engagement with the performance through 'Hackers' opens up a new dimension of 'being with'. Having already acknowledged the audience (in all its forms) as participants rather than passive observers in the performance, the next step could be the active engagement of the audience with the performers in determining the sonic outcome. In many cultural situations, the active engagement of the audience through dancing, singing, applauding and shouting encouragement to the performers and the like is not merely normal but considered vital to the performance. The conventions of classical music performance have largely eradicated engagements that might distract from the absolute concentration on the music, enshrining the unbridgeable divide between performers and audience.

Audience engagement with the performers of 'Hidden City' raises particular questions about the nature of 'being-with' in performance situations. Each member of the audience possesses the human capacity for intending acts. It is tempting therefore to propose a new, enlarged plural subject of 'performers and audience' engaged in a collective intending act to produce the performance. However, unlike members of the group, the audience has not made an explicit commitment to group objectives, nor can one assume that the audience is in a position to anticipate the likely effects of their own actions. This may lead to audience contributions that are ineffective or that inadvertently – or even deliberately – subvert the realization of the group's objectives. From that perspective, audience contribution in its current form is best viewed as a sum of individual actions that have only a limited engagement with the collective intentionality of the group. From the performers' perspective, audience actions and those of the software agents may be indistinguishable. Both form part of the ever-changing context to which the musicians must adapt, employing - and where necessary

changing - their improvisatory strategies in order to pursue the musical objectives of the group.

4. CONCLUSION

Overall the experience of 'Hidden City' has changed the approach of its members to improvisation, by focusing attention away from musical material and towards 'being with', and the frameworks (or strategies) for action that determine being in a group improvisatory situation.

5. REFERENCES

[1] Axelrod, R. *The Evolution of Cooperation*. New York: Basic Books, 1984.

[2] Axelrod, R. *The Complexity of Co-operation: Agent-Based Models of Competition and Collaboration*. New Jersey: Princeton University Press, 1997.

[3] Coveney, P & Highfield, R. *Frontiers of Complexity*. New York: Fawcett Columbine, 1995, pp. 223-224.

[4] Dennett, D.C. "Intentional Systems", in Dennett, D.C. *Brainstorms: Philosophical Essays in Mind and Psychology*. Cambridge, Massachusetts: MIT Press, 1978.

[5] Guignon, Charles B. *Heidegger and the Problem of Knowledge*, Indianapolis: Hackett Publishing, 1983, p.105

[6] Harrald, L. "Fight or Flight: towards the modeling of emergent ensemble dynamics", in *Proceedings of the Australasian Computer Music Conference*, Brisbane, Australia, 2005, pp. 68-74.

[7] Harrald, L. "Collaborative Music Making with Live Algorithms", in *Proceedings of the Australasian Computer Music Conference*, Canberra, Australia, 2007, pp. 59-64.

[8] Kandinsky, W. "On the Question of Form", in Kandinsky, W. and Marc, F, *The Blaue Reiter Almanac* [1912] trans. H. Falkenstein, London: Thames & Hudson, 1974, p.157

[9] Lewis, G. "Improvised Music after 1950: Afrological and Eurological Perspectives", in Cox, C. & Warner, D. (eds) *Audio Culture: Readings in Modern Music*. New York: Continuum International Publishing Group, 2004, p. 282.

[10] Jean-Luc, Nancy. "The Being-with of the Being-there", in Francois Raffoul and Eric Sean Nelson, *Rethinking Facticity*, Albany,NY: SUNY Press, 2008.