

# P[a]ra[pra]xis: towards genuine realtime 'audiopoetry'

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## ABSTRACT

P[a]ra[pra]xis is an ongoing collaborative project incorporating a two-piece software package which explores human relations to language through dynamic sound and text production. Incorporating an exploration of the potential functions and limitations of the 'sign' and the intrusions of the Unconscious into the linguistic utterance via parapraxes, or 'Freudian slips', our software utilises realtime subject response to automatically-generated changes in a narrative of their own writing to create music. This paper considers the relative paucity of truly interactive realtime text and audio works and provides an account of current and future potential for the simultaneous production of realtime poetry and electronic music through the P[a]ra[pra]xis software. It also provides the basis for a demonstration session in which we hope to show users how the program works, discuss possibilities for different applications of the software, and collect data for future collaborative work.

## Keywords

language sonification, new media poetry, realtime, Lacan, semiotics, collaborative environment, psychoanalysis, Freud

## 1. INTRODUCTION

Interdisciplinarity, and interdisciplinary collaboration in particular, continue to gain ground rapidly in the Performing Arts. Writing and music are, perhaps, at the forefront of such developments with both disciplines reaching outside the traditional parameters of their crafts to scientific and technological processes as a way of furthering expression.

Writer Catherine Fargher's 2006/07 interactive performance piece/installation *Biohome: The Chromosome Knitting Project* involved, as one element, the looped video replay of the knitting of wool mixed with DNA fibre harvested from salmon testes. The live interactive sound, by composer Terumi Narushima, utilised recordings made during a SymbioticA wet Biology workshop which were then manipulated in Pd to create computerised patterns based on a range of knitting stitches [1]. This level of interactivity is highly complex and technologically demanding, but does not provide actual or realtime interaction between text and sound in the work.

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Other writing practices such as Mezangelle's eponymous quasi-computer language rely on the visual aspects of coding practice without implementing code within the text itself. Sound is often used as an adjunct to the text, as in the audio of the data[h!][bleeding texts where she uses distorted voice sounds which vaguely reiterate the titles of the pages [2]. Brian Kim Stefans' 'Alpha Betty's Chronicles' is a multicoloured static web-page work which was an 'early experiment with randomly generated formatting HTML (with a small program written in C++)' [3].

It would seem that on a global scale practitioners of multi-modal performance/theory might be coming to the conclusion that text itself is becoming increasingly obsolete, or at least that its value is considerably altered. Bill Seaman suggests that '[t]he punning potentials of the text as code provide a hidden plane of operative potential that we as a communicative world are just beginning to come to understand and employ. At this point in time, text should be observed as one media-element within a network of other forms of media-elements and processes. The evocative life of words becomes palpable in the quixotic neighborhood of generative virtual environments' [4]. This is a complex statement to unpack, suggesting some tension between the roles of the word as text/sign and the word as semantic unit. In the case of multi-modal works, it certainly suggests that the 'evocative life' of words does not necessarily need to be coupled with what one might normally associate with their 'meaning' in a poetic sense.

In general, we have found there to be a) a relatively small number of artists using text for audio generation and b) an even smaller number of artists using text for audio generation where some consideration and manipulation of the *semantic* qualities of the text forms a necessary part of the work's performance. Many collaborative audio-text works performed in less academically engaged spheres use the musician as an interpretive interface between the text and its meaning: for example, a spoken word performance accompanied by improvised audio often relies on the musical performer interpreting the emotional qualities engendered by the speaker's voice and the text's meaning to enhance the performance. What we wanted, however, was a mechanism that would let us use words as an interface for the creation of audio.

## 2. BACKGROUND

Text-to-sound converters are not uncommon. Realtime music software like Pd, Csound and SuperCollider can receive discrete keyboard events when a key is typed. Other software maps text (as ASCII characters) either to MIDI note numbers or to an MP3 file, invariably based on transmutations of alphabet positioning to pitch, texture or rhythm. More advanced converters create meta-descriptors (which may be based on a readability index, or some other lingual parser) which are then

used to control musical parameters. Please see [5] for an extensive listing and discussion of software.

Words can be treated (and encapsulated) as objects, with properties and relationships to other words that can be evaluated and used in realtime. Thus, it becomes possible to sonify text as whole words, using well-defined relationships between different words, rather than sonifying text as characters or keyboard events alone. But how might one situate semantic content to generate audio that reflects a meaningful relationship with text, without a human agent acting as interpreter?

The P[a]ra[pra]xis Project was the result of a desire to develop new ways of performing in, and thinking about, the collaborative spoken word/text/music paradigm. One of the first things that came to mind in considering the ramifications was the following pronunciation of Swiss linguist Ferdinand deSaussure, that '[t]he linguistic signal, being auditory in nature, has a temporal aspect, and hence certain temporal characteristics: (a) *it occupies a certain temporal space*, and (b) *this space is measured in just one dimension: it is a line...* Unlike visual signals which can exploit more than one dimension simultaneously, auditory signals have available to them only the linearity of time. The elements of such signals are presented one after another: they form a chain. This feature appears immediately when they are represented in writing, and a spatial line of graphic signs is substituted for a succession of sounds in time' [6]. Despite this rather simple reduction of the auditory and musical domain, we can conclude that there are strong parallels in the constraints shared between the delivery and reception of music, and the delivery and reception of language, whether in graphic or aural form. Audio-textual collaborative work then faces this constraint on two fronts, the musical and the linguistic, making it a challenge to meaningfully combine the two forms for a truly multi-modal experience.

### 3. THE P[A]RA[PRA]XIS SOFTWARE SUITE

#### 3.1 Initial Development

The initial development and operating parameters of the P[a]ra[pra]xis software suite have been described in a previous NIME paper [7]. Since then, the authors have added more complex grammatical constraints and a refined Boolean logic for the implementation of substitution rules.

The OSC interface to the realtime poetry software is now bi-directional and the realtime audio environment is able to command additional lingual constraints; this opens the door for interaction with live musical performers and poetic substitutions based on an analysis of performance and audio interactions.

#### 3.2 Current Work

Compiling a large dictionary database is destined to be an ongoing process. A long-term goal is that when playing P[a]ra[pra]xis in real-time, users will be forced to respond to lingual substitutions determined by a dynamic, but grammatically oriented rule-set, predicated on the use of a comprehensive dictionary. A player writing a poem or story will

be subjected to a continually changing narrative, and will thus involuntarily form new chains of signification, by either engaging or refusing to engage with the material presented. Also, the P[a]ra[pra]xis Collection Editor can be shaped to suit individual text projects.

For example, the following is one of many possible realisations of the first few lines of Mark Antony's oration following Caesar's murder in Shakespeare's tragedy 'Julius Caesar'.

Fri[volous ]ends, Ro[bed ]man[drin]s, Count[less infant]rymen;  
 Le[ar]n[é]d [wo]me[n] your ears!  
 I come to buy his cares, not to pra[ct]ise hymns.  
 The veil that men don [sa]liv[at]es after the[ ]m[asses];  
 The good is softly inter[fe]red with [in] their b[l]o[odli]nes...  
 Solemnly let it b[l]e[ed] without a scar!

### 4. DEMONSTRATION

Our demonstration gives people the chance to play with the software in a number of ways. One scenario is the creation of a custom dictionary and experimentation with poetic substitutions – or, bring a friend! Another scenario may involve the adaptation of an existing sonification mapping to suit an adapted rule-set; the enthusiastic experimenter is invited to write their own synthesis algorithms.

For those who are attending a NIME for the first time, particularly in an inter-disciplinary capacity, this demonstration could provide an artistically broad introduction to semantically-oriented language sonification. We encourage people to bring a favourite or original piece of writing to play with.

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