

POSTPRODUCTIONS

concert for three performers, video, laptops, various microphones,
instruments and objects + clandestine libretto

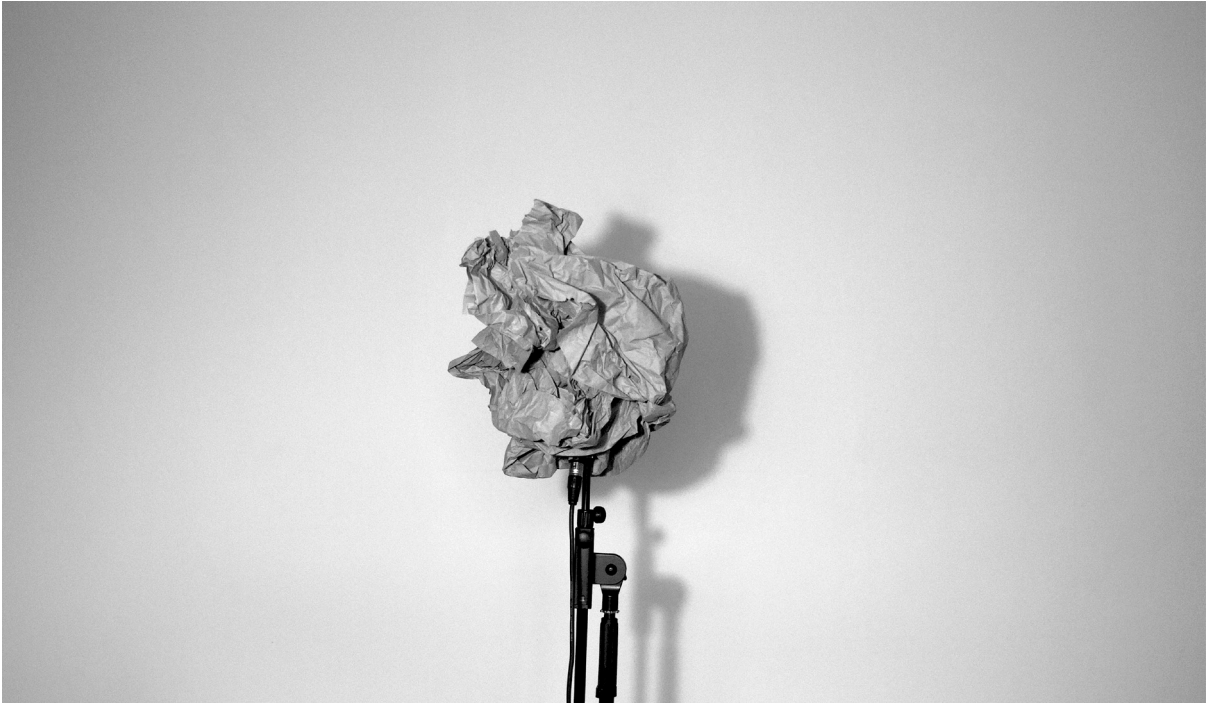
concept & realisation Raphaël Belfiore

performance Benjamin Jatton
 (e-bass, electronics and objects),
 Killian Perret-Gentil
 (e-guitar, electronics and objects)
 Raphaël Belfiore
 (electronics and objects)

embedded works from: Peter Ablinger/Vito Acconci/G. Douglas
 Barrett/Robert Bozzi/George Brecht/
 John Cage/Budhaditya Chattopadhyay/
 Nicolas Collins/Berhard Garnicnig/Scott
 Fitzgerald/Takehisa Kosugi/Christine
 Kozlov/Johannes Kreidler/Isaac Linder/
 Filippo Tommaso Marinetti/Richard
 Maxfield/Igal Nassima/Bruce Nauman/
 Non-Cochlear Posting/ Tobias Reber/Terry
 Riley/Sean Smith/The Institute Of ACES/
 Michael Trommer/Ben Vautier/
 Michael Winter

2020-21, an IGNM Zürich production

This libretto / documentation can be taken away after the concert.
Returning it or leaving it in the hall is not necessary.



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introductory remarks

Postproductions is a "performative situation" conceived as both a concert and a proper musical work. Following the instructions of a "composer-curator", three participants present exclusively pieces borrowed from other composers, visual artists or authors. The works mobilized for the occasion share two characteristics: they are all text-based and involve at some level the use, or rather the misuse, of techniques and technologies of conservation, transmission and reproduction of sound. This triad of terms, synonymous with documentation or more generally with the mediation of perceptual experiences, is also the basis of the organization of the work. Verbal scores exist as part of the situation in three distinct forms: as such, *i.e.* as descriptive and or prescriptive text of a sequence of actions, as the actual, integral and valid actualization of them and, finally, as documentation of their earlier occurrences.

The performance is accompanied by a "libretto" including this presentation essay, the totality of the verbal scores played, projected or documented as well as a system of cross-references having function of "meta-partition" – verbal too – in which the public can find all the decisions of the "composer-curator" as for the implementation of the pieces and their origin. The listener has therefore, in addition to a diachronic implementation of the works, a synoptic support giving him total access to the contents of the concert.

The title of the project comes from the book *Postproduction* by the French art critic and curator Nicolas Bourriaud. In it, he describes a set of artistic practices thanks to this audiovisual notion that includes processes such as "*montage, the inclusion of other visual or audio sources, subtitling, voice-overs, and special effects*"¹. These practices, going beyond the valorisation (ready-made) or devalorisation (situationist detour) of cultural artefacts, imply a reprogramming, a use of the works in new scenarios.

composer-semionaut

These scenarios are "written" by artists who are not at the origin of the materials they mobilize. Bourriaud uses the figures of the DJ and the programmer, both of which emerging with the development of the internet, to make explicit his notion of post-production. The former, unifying found lines of code and the latter programming a personal "set", present as work a configuration of knowledge, an original itinerary through the signs already available in culture. This leads Bourriaud to call these figures as well as the artists "practicing postproduction" semionauts. *Postproductions* (in the plural, *i.e.* the musical work in question here) is such an itinerary.

The idea of "semionautics" has as a corollary that all consumption implies a concomitant production. This one is not however to consider as practiced uniformly

1 Nicolas Bourriaud, *Postproduction*, p. 13

and in a standardized way. "[Consumption] is devious, it is dispersed, but it insinuates itself everywhere, silently and almost invisibly, because it does not manifest itself by its own products, but rather by its modes of use of the products imposed by a dominant economic order."² The user always interprets and appropriates the consumed commodity.

This question of usage as interpretation is presented under two aspects in Post-productions. First of all, the "composer-semionaut" is as much a consumer as a producer, *i.e.* as much a listener as a composer. Necessarily reappropriating the material he mobilizes in new narratives, he presents the result of his own consumption. (The idea of curation is then to be taken in a rather broad sense: in spite of presentations as valid as possible of the versions of each work, the situation is not exactly curatorial insofar as their combination benefits less to the presented works and their respective authors than to the "post-producer" who makes use of them.) Secondly, the works presented have been selected because they all involve, as mentioned above, the use or misuse of techniques and technologies for the conservation, transmission and reproduction of sound.

(mis-)user manual

*"To be free is to play against the devices"*³, said Vilém Flusser about photography. Although more fatalistic than De Certeau regarding the freedom implied by the popular use of cameras, they are both interested in the game that is established between, on the one hand, an object whose manufacture implies a certain number of prescriptions of use and, on the other hand, its user having a certain power of action. For example, for Flusser, the true "photographer" is the one who does not limit himself to reiterate in a redundant way the already realized results of the "program of the apparatus", namely the set of combinations of parameters entering in interaction to produce a photographic result. The informative and thus relevant documentation is the one that uncovers still hidden parts of the program. It then includes a critical and creative aspect.

*"First, one can deceive the machine, however stubborn it may be. Secondly, one can introduce clandestinely into its program human intentions that were not foreseen. Third, one can force the apparatus to produce the unexpected, the improbable, the informative. Fourthly, one can despise the apparatus as well as its productions, and divert its interest from the thing in general to concentrate it on the information."*⁴

Adapting these considerations to a musical practice, the composer's "play against devices" must be transmissible in order to be re-actualized in performances. Traditional notation as a specialized code is not usable since it is incapable at a fundamental level of representing certain technical processes such as feedback for example.

2. Michel de Certeau, *The Practice of Everyday Life*, pp.13-14

3. Vilém Flusser, *Pour une philosophie de la photographie*, p.111 (trans. R.Belfiore)

4. Ibid.

The use of text is then an alternative to make a subversive musical/artistic use of devices. Several notorious scores by Fluxus artists, John Cage or later Alvin Lucier demonstrate this tendency.

participant-composer

The use of verbal scores, notably by Fluxus artists, also implies a dissolution of the border between the "specialist" artist and the receiver of his work for at least two reasons. On the one hand, the music has as support a generalized medium whose comprehension does not require any study of a specific code. On the other hand, a traditionally culturally peripheral thing, idea or action of everyday life can become a work of art, or at least, something worthy of attention during a performance, the score functioning as its virtual frame. The participant in the concert is thus potentially just as qualified to perform the works as the performer in front of him.

Postproductions does not aim to be a reconstruction of the past era of happenings and Fluxus events, but rather proposes a reactualization of the works according to a completely different context. The use of technology as a way to mediate meanings is now daily and global. Microphones, recorders, cameras, but also editing and audiovisual transformation processes are common practice. The member of the audience is then also a producer of multimedia content (at least in potential) and the composer-semionaut finds in front of him his potential counterpart. In addition to the exclusive use of verbal scores and recording devices, a possible symmetrical relationship between the audience and the concert participants is also found in a more extensive way in *Postproductions*, via a certain form of "interactivity".

On the one hand, the listener has access to all the verbal content of the works presented in any way via the clandestine libretto (named so because of the total disregard to the legal questions that the present approach implies). The public is then able to grasp and reproduce not only the individual works presented in as many variations as desired, but also the complete dramaturgy of the *Postproductions*, whose "meta-score" consists of a system of notes grafted onto the scores used.

On the other hand, the project, although not specific to the site, was thought for the Kunstraum Walcheturm in which an audience would be located. Indeed, the floor is particularly noisy and usually reveals the presence of the public despite its relative inactivity. The choice of certain works was therefore made for pieces that required various types of sound recording of the room's environment at the time of the performance. The sound results of *Postproductions* are therefore deeply influenced by the mere existence of an audience.

Finally, certain scores, presented only in the form of textual "propositions" involve the listener directly as the creator of imaginary performances. One could thus also consider his mind as being part of the media in which the work is manifested.

medial interchangeability

In *Postproductions*, the works are indeed presented not only as performed verbal scores, but also, and interchangeably, in the form of texts and documentations. These three categories of presentation are analogous to the three fundamental modes of knowledge that a listener can have of music: through the direct experience of a performance of it, its recording or its description. Without however being a univocal valorization of the materiality versus the ideality of music, *Postproductions* gathers these three normally disparate modes of existence in a fundamental situation of the musical experience: the concert.

As already pointed out above, it is regarded as a fundamentally participatory situation in which works, performers and an audience interact in a specific way. Listening is then not only an attention to the perceptual content manifested in it, but a form of witnessing whose possibility lies in the fact that reception and production are simultaneous and relatively immediate (in the temporal as well as in the medial sense). In this sense, it is not really the type of musical content that is proposed that counts but rather the fact that they are presented in a unified situation, both spatially and temporally. Performance thus takes precedence over content in the definition of music proposed here.

In *Postproductions*, however, performance is not understood as the pure and simple realization of the instructions contained in a score, but also consists of other forms of implementation. The ritualized and contextualized presentation of a document, making it function as stage music, or the materialization of a text in the form of a booklet or live typing are here the main examples.

closing remarks

More could be said about this work, whose evolution has taken place over two years during which questions about culture, participation and mediation have been particularly relevant. *Postproductions* rejects the obsolescence of the in-person concert without denying the poetic potential made possible by other already long-established forms of transmission, not only on their own but also when combined.

Finally, it is possible to suppose that some will see in this text and perhaps this libretto a kind of unwelcome pedagogy or pedantry in art, an activity that should do without explanations at most. I dare however to hope that others will perceive in the approach presented here as an attempt at maximum transparency as an ethical principle.

Wrap a live microphone with a very large sheet of paper. Make a tight bundle. Keep the microphone live for another five minutes. ^{1a}

A Software which provides the display of a given text, word by word, sequentially triggered by a short acoustic event like a clap. The performer creates such events, thus rhythmising the text. Audience etc. can also be included in creating these word events. The words should be projected on a canvas. ^{2 a 3}

Preparation

Each performer provides a battery of instruments/objects with a range of sound-producing abilities including but not limited to: sustained noises, sustained tones, pitched or nonpitched percussive sounds, metallic sounds, wood sounds, plant sounds, brief tones or noises. A stopwatch is required for each performer.

The piece starts with a duration of five minutes in which the performers listen to the “silence” of the performance space while creating written scores based on their observations of sounds that occur within this time span. A list of timings should be created, each timing to correspond to a textual description of a sound occurring at the given moment. Included in each description should be features such as the overall shape or contour of the sound, dynamic level, duration, etc. An occasional reference to a sound’s source is ok but should not predominate. Examples: “low sustaining tone”; “soft sustaining noise”; “quick percussive sound”; “noisy descending glissando”. [See also the included example score.] ^{1e}

At the end of the five minutes the performers reset their stopwatches and perform their respective scores, creating the indicated sounds to the best of their ability using the instruments at hand. The piece ends at the end of this, the second five-minute duration. ^{11f}

You should arrange the sound system so that the whole hall is just on the edge of feedback ... not actually feeding back, but feeling like it might.
No piano is necessary.⁵

Sitting and hearing⁶

Wrap a live microphone with a very large sheet of paper. Make a tight bundle. Keep the microphone live for another five minutes.⁴

Performers use mirrors to show the audience to itself.⁸

Record⁹

Microphones are placed in the street, outside windows or hidden among audience and sounds are amplified to the audience via public address system.⁷

1. the recorder is equipped with a continuous loop tape.
2. for the duration of the exhibition (april 9 to august 23) the tape recorder will be set at «record» all the sounds audible in this room during that time will be recorded.
3. the nature of the loop tape necessitates that new information erases old information. the «life» of the information, that is, the time it takes for the information to go from «new» to «old» is approximately two (2) minutes.
4. proof of the existence of the information does in fact not exist in actuality, but is based on probability.¹¹

The last time in history that only one piece of recorded audio was being played anywhere on the globe.¹²

Conditions: Continuous recording Duration: 24 hours
Date: March 19, 1969
Time: 12 am to 12 am
Tape specifications: Loop tape, duration 1 hour Actual amount of sound recorded: 24 hours Actual amount of sound on tape: 1 hour

Famous last sounds.¹³

The amplification of the ambient noise of a room from 0 to 2000 times the original amplitude exponentially with the output clipped between 0 and 1.¹⁴

A heavily amplified candle burns underneath, and heats, the cable which carries its signal to an amplifier.¹⁵

I play from tape the first two phrases of a song. I repeat the two phrases, singing along until I have learned them and captured the feel of the original recording. I play the next two phrases, repeating the four phrases until I have learned them. I continue by adding two more phrases each time until the whole song is learned.²¹

sound of extreme pressure, 10000 meter or above [under] the ocean.¹⁷

Drama of distances:
11 seconds of a military march danced in Rome
11 seconds of a tango danced in Santos
11 seconds of religious Japanese music in Tokyo
11 seconds of lively rural folk dance music from Varese
11 seconds of a boxing match in New York
11 seconds of street sounds in Milan
11 seconds of a Neapolitan song sung in the Capo Cabaña Hotel of Rio de Janeiro²²

use hyper-directional speakers to beam a real-time inverse phase of the ambient sound in a factory, urban centre or other loud environment...make pockets of silence to rest the ears.¹⁹

Drill a hole about a mile into the earth and drop a microphone to within a few feet of the bottom. Mount the amplifier and speaker in a very large empty room and adjust the volume to make audible any sounds that may come from the cavity.¹⁶

Drill a hole into the heart of a large tree and insert a microphone. Seal the hole with cement. Mount the amplifier and speaker in an empty room and adjust the volume to make audible any sounds that might come from the tree.¹⁸

Hacking the traffic system of a city to take hold of all the loud-speakers, including airports, trains and metros. Inserting (between regular announcements) field recordings of the city made and curated by regular passerby.²⁰

Performers and audience listen to a play over the radio.²³

Turn on a radio. At the first sound, turn it off.²⁴

THE SOUNDS MY EARS MAKE AS THEY HEAR SOUNDS THAT EXIST.²⁵ // THINKING WHAT I HEAR²⁶ // THE SOUND OF TYPING THESE WORDS ON MY COMPUTER KEYBOARD.²⁷ // THE SONIC RESULT OF THIS TEXT SCORE IS THE RHYTHM PRODUCED BY TYPING IT.²⁸ // ELECTRET MICROPHONES ARE SUBCUTANEOUSLY INSERTED IN THE ARTIST'S FINGERTIPS.²⁹ j

Pea Soup is a self-stabilizing feedback network that generates a sonic image of its immediate environment in response to certain basic acoustical properties of the space: the set of resonant frequencies (normal modes), the reverberation time, the level and pitch of ambient sound, the speed and paths of sound transmission, and the standing-wave patterns. Within a static architectural space some of these properties are constant, some vary according to meteorological conditions, and some can be influenced by human activity. Pea Soup can exist as a participatory public or private installation, or it can be presented in concert by performers who use instruments to manipulate the variable properties and thereby change the character of the image.[...] i Assemble any number of electronically independent channels of the Pea Soup patch within the chosen space. Position the speakers facing inwards from the periphery of the performance area. Distribute the microphones within the area; they may be mounted on stands, suspended, or fastened in any other appropriate way. The location of the microphones and speakers in relation to each other and to the boundaries of the space delimits the full Pea Soup field and influences which of the resonant frequencies will be heard. Separate each microphone from the speaker associated with it by a distance at least as great as the wavelength of the lowest frequency of feedback that you wish the loop to generate. When more than one channel is used, this distance should be different for each microphone-speaker pair in order to increase the number of possible frequencies in the soup. [...] ii Tune the system so that it is stable enough to require no subsequent adjustment. For each such tuning find instruments that you can use to change the character of the soup: your body; other bulky, moveable objects; any acoustic or electronic sound producing device; any mechanism or material that can alter the density or motion of air with a careful tuning process prior to any other activities. When you are still and silent the soup flows around you through the space. When you move, make a sound, or change the air, you displace some and disturb its flow. When you stop, it returns, filling the place you previously occupied, following the sounds you made, and adopting a new pattern of circulation. Each pattern contributes a different perspective to the Pea Soup image. Treat Pea Soup as an alien intelligent being who is attempting to gather information about her environment and its residents. The soup is both the tool with which she examines the space and the language by which she processes information and expresses her image of the space. Approach performance as an attempt to 1) facilitate her acquisition of information about the environment and you by inducing a variety of circulation patterns, and 2) learn her language and therefore begin to perceive the space through the soup. Develop instrumental technique that is appropriate to the task of directing the flow of the soup. Derive performance realizations from your experiences.[...] iii 30 k

Wrap a live microphone with a very large sheet of paper. Make a tight bundle. Keep the microphone live for another five minutes.³¹ l

The performer takes any object(s) such as a piece of paper, cardboard, plastic, etc. and places it on his ear(s). He then produces the sound by rubbing, scratching, tapping, or tearing it, or simply dragging it across his ear. He also may just hold it there. It may be played in counterpoint with any other piece or sound source. If the performer wears a hearing aid, it would be best to make the sounds close to the microphone (of the hearing aid). The duration of the performance is up to the performer. Children performing Earpiece should be warned not to stick their fingers too far into their ears, as they may seriously damage the inner ear.³² m

Wrap a live microphone with a very large sheet of paper. Make a tight bundle. Keep the microphone live for another five minutes.³³ n

1. *Micro 1* (1961) Takehisa Kosugi
The Fluxus Performance Workbook (ed. Ken Friedman, Owen Smith and Lauren Sawchyn)
2. *Text Clapping* (2015) Johannes Kreidler
Unedited, courtesy of the composer
3. *A few silence* (Zürich, 11.09.21, 21:30) (2007)
G. Douglas Barrett
Word Events: Perspectives on Verbal Notation (ed, James Saunders and John Lely)
4. *Micro 1* (1961) Takehisa Kosugi
The Fluxus Performance Workbook (ed. Ken Friedman, Owen Smith and Lauren Sawchyn)
5. *One3 = 4'33" (0'00) + G cles* (1989)
John Cage, Unedited, found on: <http://rosewhitemusic.com/piano/wp-content/uploads/2018/09/One3score.jpg>
6. *Weiss/Weisslich 14: Sitting and hearing* (1995)
Peter Ablinger <https://ablinger.mur.at/docu01.html>
7. *Mechanical Fluxconcert* (date unknown)
Richard Maxfield
The Fluxus Performance Workbook (ed. Ken Friedman, Owen Smith and Lauren Sawchyn)
8. *Choice 18* (1966) Robert Bozzi
The Fluxus Performance Workbook (ed. Ken Friedman, Owen Smith and Lauren Sawchyn)
9. *Symphony No.4* (1964)
George Brecht, The Fluxus Performance Workbook (ed. Ken Friedman, Owen Smith and Lauren Sawchyn)
10. *[Submission for Seth Siegelau's March 1969]*
Christine Kozlov, Seth Siegelau, March 1969
11. *Information, No Theory* (1971)
Christine Kozlov, https://www.ubu.com/papers/kozlov_information.html
12. *Solo Voce* (2013)
Isaac Linder <https://imaginarysoundworks.com/>
13. *Composition Exercice #331* (2019)
Tobias Reber, <https://www.ahundredquirkylegs.com/>
14. *4 Computer Music Studies : 2) Distortion and Control* (2017), Michael Winter https://www.unboundedpress.org/scores/4_computer_music_studies_score.pdf
15. *#65* (2015)
The Institute Of ACES <http://aces.ricercata.org/textscoreaday/index.html>
16. Untitled (1970) Bruce Nauman
Please Pay Attention Please: Bruce Nauman's Words: Writings and Interviews (ed. J.Kraynak)
17. *Anonymous* (2013) Igal Nassima <https://imaginarysoundworks.com/>
18. *Amplified Tree Piece* (1971) Bruce Nauman
19. Untitled (2012)
Michael Trommer <https://imaginarysoundworks.com/>
20. *Post-post-city* (2015)
Budhaditya Chattopadhyay <https://imaginarysoundworks.com/>
21. *Learning Piece* (1970) Vito Acconci
Konzeptuelle Musik: Eine kommentierte Anthologie (ed. Urs Peter Schneider)
22. *Sintesi Radiofoniche: Dramma di Distanze* (1933) Filippo Tommaso Marinetti
Konzeptuelle Musik: Eine kommentierte Anthologie (ed. Urs Peter Schneider)
23. *Radio* (1961) Ben Vautier
The Fluxus Performance Workbook (ed. Ken Friedman, Owen Smith and Lauren Sawchyn)
24. *Instruction* (1961) George Brecht
The Fluxus Performance Workbook (ed. Ken Friedman, Owen Smith and Lauren Sawchyn)
25. (2012)
Sean Smith <https://imaginarysoundworks.com/>
26. *Weiss/Weisslich^{11f}, Thinking what I hear* (2012)
Peter Ablinger https://ablinger.mur.at/ww11f_denken.html
27. *Right here right now* (2012)
Bernhard Garnicnig <https://imaginarysoundworks.com/>
28. (2018)
Non-Cochlear Posting <https://twitter.com/noncochlear>
29. *Tactile* (2011)
Scott Fitzgerald <https://imaginarysoundworks.com/>
30. *Pea Soup* (1974)
Nicolas Collins <https://www.nicolascollins.com/aboutpeasoup.htm>
31. *Micro 1* (1961)
Takehisa Kosugi
The Fluxus Performance Workbook, (ed. Ken Friedman, Owen Smith and Lauren Sawchyn)
32. *Ear Piece* (1962)
Terry Riley
<https://www.moma.org/collection/works/127535>
33. *Micro 1* (1961)
Takehisa Kosugi
The Fluxus Performance Workbook (ed. Ken Friedman, Owen Smith and Lauren Sawchyn)

a Micro 1 and Text Clapping, considered as complementary pieces, are merged into one situation that is performed two times simultaneously. Each version of Micro 1 gives the impulsions to the respective software of Text Clapping to which they are connected. One version presents the text score of Text Clapping, the other one the score of Micro 1.

b The two Micro 1 versions use two different papers. The size and the quality of the two sheets of paper induce different wrapping and tightening times.

c The Text Clapping software is active until the end of the sound transmission.

d The battery of instruments is found in different already existing video-documentations of the piece. Each performer tries to recognize and procure the objects present in one single video. Each video is a different version of A Few Silence.

e The first part of the piece begins during the Micro 1/Text Clapping versions, when their sonic result can be considered as mostly silence.

f While a physical occurrence of the documentation is performed. The three video sources are projected simultaneously from the beginning of part I behind the relevant performer. When the physical part II is over, the video then normally continues to the documented part II.

g Micro 1 is performed with a third kind of paper. Its expansion time is not too long. The amplitude of the microphone is set at the limit of feedback.

h The whole duration of One3 is recorded and serves as the ambient noise recording for Distortion and Control. There is no interruption between both pieces.

i The scores presented in this double page are presented only as texts during the performance. Scores 4 to 13 are presented during the performance of One3. Scores 14 to 24 during 4 Compu-

ter Music Studies : 2) Distortion and Control. The numerical order of the notes correspond to the sequence in which they are presented. The three columns correspond to the three performers. The vertical spaces determine changes of sections. Not all performers present texts in every section. The speed of the change between texts is adapted to the anticipated duration of the performances.

j Scores 25 to 29 are presented only as live-typed text during the performance of Pea Soup. One performer types very slowly with long pauses between scores while the two others interact with the feedback patch. The performer typing is in charge of the tuning of the patch before beginning the presentation of the texts.

k Three channels of Pea Soup are set in parallel for the performance. There is no interruption between Distortion and Control and Pea Soup.

l The performance of Pea Soup is concluded with a performance of three simultaneous versions of Micro 1 on the microphones used for Pea Soup. The patch continues to run until the end of Earpiece

m Three simultaneous recordings of Earpiece, each one by a different performer, are presented as audiovisual documentation. The performers try to re-enact their movements from the recording as closely as possible. The paper type used in the various performances of Micro 1 is the only material used in the performance.

n The final version of Micro 1 consists of twelve audio and video recordings of a performance of the score. Each performer makes four recordings, each time with a different paper (also used in other performances in the concert). The twelve videos are superimposed in such a way that the 5 minutes prescribed by the score begin (and thus end) together.

i [The Patch

Pea Soup uses a configuration of electronic components to shift the pitch of an audio feedback signal among various resonant frequencies of the air space in which it is operating. In a simple microphone-amplifier-loudspeaker loop feedback can occur at any frequency whose wavelength is integral both to the distance separating the microphone from the speaker and to at least one of the dimensions of the space. When a short (<30 ms), variable time delay is introduced into the feedback loop, it effectively changes the speaker-microphone distance and therefore can be used to reinforce or cancel frequencies of different wavelengths.

In Pea Soup an electronic delay is produced by a Voltage-Controlled Phase-Shifter. The amount of delay is determined by an Envelope-Follower, which generates a control voltage that is, at any moment, directly proportional to the level of sound at the microphone. As the system begins to feed back at a particular frequency, the increasing amplitude of the signal causes a change in the delay time. This cancels feedback at the initial frequency and enables it to begin again at one that is resonant within the conditions established by the new delay time. The increasing amplitude of this signal causes another delay change, which cancels the second feedback frequency and enables another to begin. Once the system has been properly tuned this process of selfstabilization can continue indefinitely.

The acoustical properties mentioned earlier are the principle determinants of the characters of this process and the sonic «soup» that it generates. Feedback occurs at frequencies that are resonant to the air space; the speed with which it shifts is dependent on the reverberation time. Any sound, ambient or performed, picked up by the microphone increases the delay; in addition, the feedback tends to «follow» the frequency of pitched sound performed in the space. Any object or condition that influences the transmission of sound from the speaker to the microphone alters the standing-wave patterns and consequently changes the sound level at the microphone. The speaker and microphone together define a «responsive field,» within which the sounds, location, texture, and movement of objects and beings, and the density and motion of the air all affect the soup.

A Limiter is inserted into the loop in order to prevent high-level feedback signals from distorting or overloading the other devices. An Equalizer or the tone controls of an audio preamp can be used to balance the system for wide and uniform frequency response or to tune it to a specific operating range. The response pattern of the microphone (unidirectional, cardioid, omnidirectional, etc.) determines the shape of the field.]

ii [The density of the soup is a function of the number of channels used and the total sound level. The power amplifier and microphone preamplifier level controls, the Envelope-Follower and Limiter slew times, and the control sensitivity of the delay all affect the speed and phrasing characteristics of the soup. The delay range and the Equalizer settings can be adjusted to maximize the frequency range of the feedback.]

iii [Performance Suggestions Movement

Set up several channels of Pea Soup in a performance space. Mount the microphones three to four feet above the floor. Tune the system so that it responds to movement in the field. Walk slowly through the field. Pause after each step for the soup to react and settle fully. Perform slow, simple, exploratory movements of your body while standing in place: turn your head or torso, raise an arm, lean, bend, crouch, etc. Do not perform any compound motions (i.e. turning while stepping or raising an arm) or any superfluous actions.

Pea Soup is sensitive to the size of movement and objects. Small movements or the motions of a small or narrow object (such as a hand, an arm, or the head) have the strongest effect on high frequencies. Movement of the torso affects both mid-range and high frequencies. A step forward usually affects the entire range of the soup.

Adopt Pea Soup's phrasing characteristics. Let your movement grow not from visual considerations but from a sensitivity to Pea Soup's manner of perceiving you.

The duration of the performance is determined by the length of time you take to move across the entire field.

Voice

Set up several channels of Pea Soup in a performance space. Mount the microphones four to five feet above the floor. Tune the systems so that it shifts through a wide range of frequencies and is responsive to pitched vocal sound.

You may begin and end a vocal performance in one of two ways:

Tune the system. Enter and leave the field by following the suggestions for the performance of movement.

Walk to the center of the field. Have an assistant turn on and tune the system. Leave the field only after he has turned it off. Stand in the center of the field. Listen: learn the pitch vocabulary and phrasing of the soup. Perform the following tasks several times, in any order:

Begin a note in unison with a pitch that grows out of a silence or lull in the activity of the soup. Attack the note softly on a round «oo,» (as in «soup»), «n,» or «m» sound and increase to a loud «e» (as in «pea»). Sustain the «e» and detune it slightly until the soup cancels that pitch and shifts to a different one; then sharply release the note.

Begin a note out of a silence or lull; it should have a pitch that you have heard before, but one that is different from the one growing out of the lull at that moment. Attack the note softly on an «oo,» «n,» or «m» and increase to a loud «e.» Sustain the «e» until the soup shifts to your pitch or to a harmonically related one; then sharply release the note.

Choose a soup-pitch that is not sounding at the moment. Sing it as a short, loud «e» with a sharp attack and release. Pause for two or three seconds, Repeat the pitch but sustain it a little longer than before, Pause. Repeat it again but sustain it even longer. Continue this process until you have coaxed the soup onto this pitch or onto a related one.

Choose a soup-pitch that is not sounding at the moment. Sing it with a slow attack and sharp release

{ «oo»->e», a sharp attack and slow release («e»->oo»), or, a slow attack and slow release («oo»->e»->oo»). Repeat the note, with pauses, until you have coaxed the soup onto this pitch or onto a related one.

Learn a two or three note sequence from the soup. Mimic it as accurately as you can. Will the soup repeat it after you?

If, at any time, the soup locks on one pitch, sing a loud «e» an octave or two above and detune slightly until the soup cancels the pitch.

Make your performance very sparse. Sing no louder or longer than is necessary to coax the soup onto each new pitch. Pause after each event for the soup to react and settle fully. Follow Pea Soup's sense of time and phrasing. You may sing from different locations in the field, but do not sing while you are moving or while the soup is settling from your movement.

Changes of Temperature

Set up and tune several channels of the Pea Soup patch. Use any available heaters and air conditioners to change the temperature of the entire space as rapidly as possible between its greatest extremes.

Set up several channels of the Pea Soup patch in a space with a flat, smooth floor. Place the speakers on the floor, and mount the microphones on short stands or in mic-mice. Tune the system so that it is responsive to the movement of the heat sources used in the performance.

Provide each performer with a candle in a wide-based holder with a long string attached. Place the lit candles around the perimeter of the Pea Soup field. Lay the strings across the field, each leading to a point opposite its candle,

Pull the candles very slowly across the field,

Other small sources of heat, such as kerosene lanterns, Coleman lamps, oil lamps, butane lighters, blowtorches, or cans of Sterno, may be substituted for the candles.]

