Ute Holl [1] and Elisabeth Schimana

How does he feel? Does he need another blanket?
Manon Liu Winter

UH The synthesizer can freeze. For technical reasons. The oscillators are sensitive to temperature. They can get out of tune, are out of tune. Max Brand can freeze. The synthesizer is more than an instrument, it is a state-generating machine, whether one calls that state a feeling or a perception, describes it as a tone color or a color temperature, hot or cold, heaven or hell. Max Brand is a wish machine, in other words under determinable conditions "he" engages in a recursive relationship with human bodies, organs, or parts thereof. A wish machine arises “in the way in which arbitrary elements are made to be machines through recursion and communication.” [2]

Female musicians often speak of an emotional bond with their sound machines. A oneness that doesn't directly transfer to the listener, the audience. And it isn't something you can see either because you assume the person at the keyboard, if there is a keyboard, is a kind of piano player. At least that’s what it looks like. If you are playing, however, it feels different. And the same goes for composing, preparing, tempering, patching, and attaching.

A machine that freezes or breaks: Suzanne Ciani on the oneness formed between her and her Buchla 100: “I was too emotionally attached and frankly, I was having a nervous breakdown, because when the thing was broken, I was broken. I was so attached to it, when it didn’t work, I didn’t work.” [3] According to Trevor Pinch and Frank Trocco “it is the very analog character of her synthesizer — his idiosyncrasies and its imprecisions — that encouraged Suzanne to think of it in a different way. (...) it was an identity that crosses boundaries, that was hard to categorize, a perfect identity for a woman in a man’s world who wanted to have it all.” [4]

Naturally not everyone can fuse with Max Brand and become a wish machine. And not everyone can be a diabolic pianist like Manon Liu Winter. But sound machines are couplings with tiny psychophysical elements of us, producing new bodies. Which is why you want to move when you hear a Hell Machine concert. Elisabeth Schimana experiments with deep tones, subharmonic frequencies, a low, hardly discernible pulsing whose racing or seething tones shift minimally, sometimes giving rise to perceptible rhythms. Max Brand heats us up under precisely determined conditions.

ES Machine Components
The heart is a master oscillator with frequency dividers, a technology also found in the Mixture Trautonium, which Oskar Sala began developing in 1950. It plays four sub-frequencies down to 1/20 parallel to the basic frequency. The operator can pre-program three blocks with four sub-frequencies each and switch between the three blocks using pedals, and it is this setup that gives the machine its special power and sound quality. All that multiplied by two! Two oscillators, two frequency dividers, six programmable blocks. Throw in the first voltage-controlled Moog-modules, VCA (voltage-controlled amplifiers), VCO (voltage-controlled oscillators), VCF (voltage-controlled filters), LFO (low-frequency oscillators) – two of all of those – plus a noise generator, a ring modulator, a spring reverberator.

That all boils down to 20x4x3x2 possibilities and all the frequency combinations resulting from them plus a finite but huge number of variations of connecting the voltage-controlled modules. And the oscillators hum. Two monophonic units.

1 Dr. Ute Holl, Professor of Media Studies at the University of Basel 2 Gilles Deleuze/Félix Guattari: Anti-Oedipus. Capitalism and Schizophrenia I, Frankfurt/Main, 1974, p. 499 3 Trevor Pinch/Frank Trocco: Analog Days. The Invention and Impact of the Moog Synthesizer, Cambridge MA, London, p. 169. 4 Ibid. p. 169f

UH The Max Brand Studio set up at the Kulturfabrik Hainburg looks like a small studio time-warped out of the fifties. A small space within a larger space, a sorcerer's den or a devil's cave, a she-devil's cave, an unstable space that expands and shrinks, cools down, heats up. I look around and see boxes with specific functions, plugs, wires, switches, tape machines, two keyboards, pedals. Everything in dark brown. The Max Brand Synthesizer can transform voltage-controlled sounds in different ways: it can produce discrete tones via its keyboards and glide continuously from pitch to pitch with the help of its ribbon manuals. In Hainburg one can approach Max Brand from two sides, but it is still difficult to match what one hears with what one sees.

ES I don't think discrete tones really exist, maybe they are formed discretely in the sense of on/off, but the sound itself spreads out in time, changing continuously. Your eyes see hands moving on the manual and your brain automatically thinks: pitch. Maybe, maybe not. After all, it’s not a piano!

UH True, Max Brand teaches you to listen with your ears and not with your head. But it's not that easy. The analytical mind tries to go back to the moment of sound production, but there is no source, no origin, no where-it-came from, there is only sound space.

ES An upper and a lower manual, each with 85 on/of switches (keys) and a continuous controller (ribbon controller). Two inner pedals for switching frequency blocks and/or adjusting volume, two outer pedals for adjusting volume. Potentiometers, rocker switches, plugs, and wires.

UH Hands and Feet. Even today the piano, which was meant to cultivate us all (Scherer), still provides us with the model of how a keyboard instrument makes sounds. But the interfaces of the Moog and the Max Brand are different, a completely different body-sound concept. Hands, feet, arms, eardrums, dissociated and associated differently, beyond the physical body. Organless sound-machine bodies. What do we hear at the concert? When listening to the synthesizer, all music parameters shift and realign themselves. First you have to accustom yourself to the parameters that the synthesizer – like all synthesizers, but not like all ears – intercorrelates at a blinding speed: pitches that are to play a dramaturgical role in the composition (Hell Machine), though not the decisive one. Pulses that drone, droning that gives way to singing. Tone colors that are produced in relations between sub-frequencies and which always retain the whisper of the wind. Layers of roaring superimposed upon each other, swelling to deafening levels

ES It’s the density, a mighty frequency-rich mass of sound that I unleash on the bodies. I never work with just volume. It can cause severe injury.

ES Bodies
Four hands and two feet of two people working. Finger work. Footwork. Plus eyes and ears, brains. Brainwork. And hearts thumping.

UH Max Brand is a wish machine: in its own space it coordinates two oscillators, two synthesizers, two times two body halves, and the elf-like figure of the composer. This space expands during the concert, its sounds spread through the hall as oscillations and vibrations, washing through the audience, permeating it, plugging into the machine, swinging into synch. Unlike in jazz, etc. the climax of creativity in electronic music isn't the live performance, it's the strict work of conception, planning, and patching. Synthesizer music is more like studio music.

ES Synthesizer music was more or less studio music until 1969 when Moog put the legendary Minimoog on the market – a synthesizer fit for stage use. In any case, Max Brand was still working in the studio with overdubs on tape machines, editing them afterwards into sound mixes. Back to analog but with an awareness of live electronics and a return to the playful approach, with musicians with decades of experience combining instruments and electronics, and with brains that had become inextricably interwoven with the patterns of working with electronics.

UH But at the Hell Machine concert it becomes clear that it's not just about the beauty of the ebb and flow of layers of sounds, timbres, and sound spaces, but also about the fusion of spaces and bodies, about sound spaces that overwhelm the listener. Because we listeners are released and become unbound within the sound space, because as listeners we cannot go back to Pythagoras and

his beautiful cosmic order. Because we are being sent to a strange space – a concert or rather a discert. The Hell Machine as a composition and sound machine, as work and effect in one, huffs and puffs and blows us out of the familiar human cosmos.

ES Material
Σ = machine parts + interfaces + bodies
What ideas can be thought? What sounds imagined? Which constructs/crutches are useful? Which signs have meaning? Mental work. Imagine the unimaginable, hear what has never been heard before.

I made a list of all the sub-frequencies. Empirically gathered acoustic information. Divided the sound space/keys and ribbon manuals into major sixths and gave each division a name. Programmed blocks of subharmonic frequencies.

UH Like all composers the composer Elisabeth Schimana works on an analytical level but also on a physical level, as a constructor, a feeling and touching body. Hand and brain, skin and bones, auricle, membranes, and lips, whatever oscillates. There is no user's manual for her sound machine. She studies it by turning knobs and flicking switches, does and listens and reconstructs Max Brand's complex concept. Immerses herself in unexplored wiring diagrams and suddenly finds herself in a new old world. The Max Brand Synthesizer is from the sixties, at a time when Elisabeth – and I – were probably just starting to search for a new world beyond the sounds of our families, hiking songs sung at the top of your lungs, church music, conventional tunes. (The sixties promised everything would be different, through our ears. In the sixties the world beyond the world was an acoustic one, even on the moon.)

Elisabeth hears the subtle sub-frequencies, whatever comes out of the oscillators and generates new frequencies, she maps a sound space of partials as modulated waves. Elisabeth experiments, plays with the different timbres, pitches, durations and volumes of tones.

ES It took four ears to hear this machine, to get to know its wiring, figure it out, to gradually get it to reveal its secretes, not just mine but above all Gregor's ears.

ES State 1
Tone figures in diabolic fourths, to be played within a range as the operator pleases. Two times three blocks of sub-frequencies. Racing fingers, on/off, on/off.... Pressing a key, releasing a key at finger-wrenching speed. Keyboards controlling oscillator frequencies. Nine minutes without even the tiniest break, letting the on/off become a continuous motion, letting the listener wander through sound masses. Breathless.

UH With Elisabeth Schimana the synthesizer doesn't have anything to do with groovy sixties space-out vibes or the glamour and commercialization of that era. She goes straight to work and plants the devil into our eardrums: diabolic fourths, the tritone, the "intervall maudit" that cannot be written as a whole number, that jumps off Pythagoras' fork, the diabolic fourth in all its combinations that becomes a roar at the racing fingers of the diabolic pianist Manon Liu Winter. Who would have thought that our ears could handle that? An on/off that is hardly a vibration at all, a nerve-racking scratching and grating, but it also palpates our nerves. A micro massaging of one's nerve endings. Painful and pleasurable at once, pushing the limits of our hearing. On/off at the transition to a roar, digital/analog transition at a blinding pace. Finger tapping, faster and faster, tritone as tetanus. The perceived time in space becomes the probability of on-and-off switching occurring for a period, producing a pulsing in which we begin to levitate, to hover in the Max Brandian force field of space. The roaring coming from the (cabinet) space within a space causes disturbances in the field of tension between analog and digital. This is where Elisabeth Schimana ties Max Brand back to the historical context, historical ears and skin. In 2010 we are pushing the boundaries of the digital from within our good-old neuro-bodies. The Hell Machine isn't simply a utopian sound world. It is a connection between "Time, Communication and the Nervous System" (Wiener).

ES State 2
Breathing. A wave of sound beginning with one frequency. Pauses. A gradual addition of

frequencies, a gradual interweaving of waves of sound. Keyboards control oscillator frequencies. From minute nine the lower manual controls the filter frequency. Gradual, continuous changes via the ribbon manual. Feedback loops at the plug board. Fingers at the potentiometers.

UH A second state smoothes, soft, delicately thin and continuous, time and space. Waves upon waves, grainy layers that sound like water, like wind – Oh yeah? Looking for nature and metaphors in beautiful sounds, eh? Max Brand rustles, spits fire, gives us matter, we hear the crackle of circuits where there is supposedly nothing but electronics. Matter but no nature. Patience, the breaks and pauses in time dissolve and the sounds start to drift, to wander, to flow within the artificial sound space. Minimal. Finger tips, tiny ear bones, keep your balance, stay between the sounds, immersion. One effect: you withdraw from your neighbor at the Kulturfabrik Hainburg. The second state is more egotistical than the first one.

ES State 3
Ring modulation of both oscillators. A slow-motion counter-movement on both ribbon manuals. Ribbon manuals control oscillator frequencies. From one extreme to the other. And time stands still.

UH Above time, above sound, dissociations through the double oscillator in the individual body. Something grows slower, something accelerates. It can't be heard alone, only through the overlapping of states, the interweaving of relations in the body. Perceptions mix, faster/higher with slower/lower, there's no telling pitch and timbre apart. The Hell Machine plugs directly into all these interfaces with perception and the felt body, one's own body, and connects them to the body of the other. Spirits and temperatures rise.

ES Image in Space / Space in Sound
Image 1: The triumvirate of machine + operator 1 + operator 2 is in a state of total reciprocal dependency, enters into a recursive dialogue, and produces the Hell Machine.

Operator 1 = pianist: operates the manuals and pedals (Manon Liu Winter), operator 2 = electronics operator: operates the mechanical components (Gregor Ladenhauf).

Image 2: Digital zoom into image 1 with 3 live cameras on one screen. Boots, pedals, hands, keys, fingers, wires, switches, potentiometers. In motion.

Photo: Ruba, Ars Electronica 2009

UH The synthesizer can freeze. For technical reasons. Oscillators are more temperature-sensitive than any other instrument. They can get out of tune, are out of tune. The bodies of the operators and composer mix with Max Brand, become in tune, out of tune and determine each other. Influence our moods.

When it came time to write about the Hell Machine and Elisabeth Schimana's concert, I had a dream: Connected to my computer were a microwave, a radio, the electronic piano, and an electric razor. Digital machines connected to analog ones, analog to digital, machines to bodies, transferred to space. On and off and off and on. Recording media to transmission media: microwaves that can be used for transmission but which in my dream were also a micro-vibrating space. When I typed, letters, sounds, noises, and tones came out and made everything expand and then implode. Touching keys, touching tones, touching space. Dreaming.

ES Image in Space

UH Images of everything that happens between machines, bodies, boots, hands, wires, and keys in the small space of the Max Brand Studio is projected onto screens. The plane apparently gives us the orientation that acoustic space cannot deliver. But then these movements also become disoriented, form visual subdivisions, show figures where there are none, etc., but quite different from the logic of sound. In an image, as with sound, the beginning and end of a motion, origin and result, function and folly of a machine cancel each other out. There is no why or what for but a strange coincidence of actions that shift the sounds. Coincidences of partial actions. Modules make music – is what we seem to see – and they extend past the frame of the image.

ES Space in Sound
Setup: 2 mono signals on 4 separate channels. And space is formed.

UH In Hainburg the Max Brand Studio is a space within a space, but it is one with several entrances or views. Thus the diabolic sounds seem at first to come from an inner space, but then the music shifts into the larger space or more accurately, it builds a sound space apart from the two architectural spaces. The synthesizer-generated spatial layers build their own structures and render the architectonic ones void. The venue space isn't a resonance space for the electronic sounds; instead, the sounds build their own. Sometimes there are nodal points to the right or left, sometimes the sounds pile up in such a way – and here Elisabeth rightly adds that sometimes they are more, sometimes less densely stacked – that listening to the loud layers I lose my orientation. With this kind of listening you either surrender to the strongly controlled spatial mood or fear takes over, a diabolical fear of becoming part of the Hell Machine. If you move, however, if you walk through the spaces – acoustic as well as architectonic spaces – the body plugs back into and becomes part of the layers: the music changes depending on location. And the participation in the process of making music, the gazing at the screen, boots, pedals, hands, keys, fingers, wires, switches, potentiometers, and their movements and recursions, at the non-rhythmized synchrony of movements also reconnects the wish to the machine.

The first wiring diagrams for the Max Brand Synthesizer by Bob Moog are dated 1957. For more than 10 years the young engineer developed this unique machine according to the ideas of the composer Max Brand.