Sounds with a Soul

Only five modules, two oscillators, a mixer, an envelope follower and a differentiator: Sounds with a Soul! How is that possible?

Sounds of organisms and mechanical systems

Sounds from organisms such as humans and animals also contain an emotional content in addition to their possible meaning. Such an emotional message can often also be heard in the sounds that emerge from a mechanical system. For example, squeaking brakes, creaking doors and so on.

Coupled systems

What is the reason that we can hear emotions in these sound examples. That is because these sounds are caused by so-called coupled systems: Excitators and resonators with feedback. That is why loud sounds show more overtones than soft ones. The harder, the more aggressive. That, for example, a bending in loudness runs synchronously with a bending of the pitch. We hear optimally these links of psychological qualities in the sounds of organic generators, such as our own speech organ So it is impossible to be nice in an aggressive tone. You may scream and scold that you love her. The emotional message tells the opposite.

Artificial coupled systems

The first time I was confronted with an artificial sounding feedback system were the multiplied feedback circuits with an oscillator, ring modulator and EMT reverberation plate by Jaap Vink, former teacher at the Institute for Sonology. With just a feed forward system, such as the early simple monophonic analog synths, you can only apply that emotion by real time control of pitch, pitch and timbre. But then you do it yourself as a musician.

Could I think of an instrument as a 'virtual organism' that produces meaningful sound in an emotional sense, without my own manipulation trying to awaken those emotions?

`Organ-Isms.pch2`, how it works

The heart of the circuit consists of two identical oscillators, which in principle are more or less detuned to each other. What happens then you hear in the patch `BeatingOsc's.pch2`. In the envelope follower this beating is converted into a positive control signal. This control signal controls the waveform of both oscillators.

Load the `EFcntlWaveshape.pch2` patch and listen to what happens to the timbre. That is now modulated in the rhythm of the oscillator beatings. The output of the envelope follower is differentiated in the high pass filter. This differentiator supplies the output with a value that is proportional to the degree of change. If the input changes at a constant speed in the positive

direction, a positive constant value is generated. If the input signal falls in value, a negative value is obtained at the output. (see internet links)

Due to the different head-to-tail connections, the feedback loops, there occurs a very complex interaction. The oscillators are modulated via the FM inputs. This, however, has consequences for the beatings that are formed. This in turn has consequences for the out-put of envelope generator. Then the differentiator responds to that ... The circle is completed

It is also called recursion. Changing only one parameter can have very big consequences for both the sequences that are generated as well as for what kind of sounds are formed. So take the time for tweaking and start with just one variable. Then another and listen. The patches `Organ-Isms I.pch2` and `Organ-Isms II.pch2` contain an extension of the global control. A LFO is used to slowly modulate the frequency of both oscillators. The system now will interact to attempt to find a balance. But, if that has been found for a while, then this LFO forces it again into a next round of interaction, and so on. By tweaking you start to get the system in your ears and fingers. You will discover that an infinite arsenal of funny, weird, hellish, but also sweet 'sounding cartoons' can be generated.

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This article was originally published in Dutch as ‘Sounds met soul’ in Interface 110 July/August 2007.