**algorithms** is an electronic sound environment which can play for an indefinite amount of time without repeating itself. It is based on the computer program SOURCE which I have written using the programming language Mach Fourth. SOURCE's algorithms (the functional parts of a computer program) generate tone sequences within a given set of pitches. (Technically speaking SOURCE outputs MIDI numbers which then generate tones by a synthesizer.) I have defined a framework of musical elements which remains constant, but the details within it are controlled by random processes and thus keep changing continuously. As a consequence this music unites the static and the unpredictable. With its infinite number of possible permutations of a small number of elements it is reminiscent of the sound of wind chimes being gently moved by a soft breeze.

There are five versions of **algorithms** each using a different pitch-set or musical scale corresponding to five different harmonic colors.

**algorithms** can either be an acoustic background or it can be entered by the attentive perception of the listener in order to discover surprising motivic correspondences and unexpected patterns.

## Technical details

Four simultaneous polyphonic voices ranging through three octaves are being played by chime-like electronic sounds. Each voice is a continuous series of tones of equal duration based on one of three different types of basic melodic patterns which symmetrically move around a central pitch (g') which is common to all four voices. A random process determines how long these patterns play out or how far they move away from the center. Likewise, a random generator chooses the volume of each tone within a given range.

Each voice plays in a different tempo. The relationships between the four tempi are irrational, based on prime numbers, so that the voices coincide as rarely as possible. Together with the slowness of the overall speed this results in the impression of the music hovering between polyphony and monophony. What enters our ears are four different lines of evenly spaced tones, but what we perceive is one single flexible line with irregular, constantly changing rhythms. Its character changes between hesitant and purposeful, between mere tintinnabulation and an emerging musical development. It also moves through space as the four instruments are placed at different points in the stereo panorama.

As mentioned above the five versions of **algorithms** each use a different pitch-set or musical scale. They have one pitch in common (g') which thus runs through all five of them as a common thread.

The first two scales are pentatonic, i.e. they each use five pitches per octave, though distributed differently. They correspond to the two basic scales of Indonesian music, *slendro* and *pelog*. While in *pelog* the intervals between consecutive pitches vary widely, in *slendro* they are more or less the same. This results in pitches that do not exist within the tempered tuning system of western music, so in this version of **algorithms** the tuning is changed to an equidistant pentatonic scale.

The remaining scales are so-called "artificial" ones. They consist of identical repetitions of certain interval combinations and therefore cannot be transposed for more than three or four times before entering into the same pitches as the original. Because of their inherent symmetry they lack the gravity of tonality typical for the 7-tone major or minor scales of traditional western music and a majority of popular music which can be transposed twelve times. They are the hexatonic or 6-tone scale (interval sequence: 1-3, 1-3, 1-3), the octatonic or 8-tone scale (1-2, 1-2, 1-2, 1-2) and the nonatonic or 9-tone scale (1-2-1, 1-2-1, 1-2-1).

Because each time SOURCE plays a version of **algorithms** the music is different and unlimited in duration any recording is only a momentary performance document.