

My subject deals with compositional aspects in the field of computer music.

In the partnership computer - composer the computer is the realiser of the composers thoughts. The computer cannot make its own decisions, but is the most reliable and precise performer of the composers ideas.

Therefore we have to investigate the kind of orders a composer should demand on a computer.

Two opposite propositions are at the composers disposal. One direction demands that he be in full command of the computers wealth of technological realities and adapt the musical thinking to the technological facts,

The opposite point of departure is the world of sounds. The computer shall help the composer to discover for himself new realms of music - acustical facts and constellations, which even cannot be performed by human interpreters, but can be imagined in the composers mind,

Certainly , there will be spheres of overlapping and mutual influences of both ideas. However, artistic decision by the composer is indispensable, both for the quality of the composition as well^{as} for the progress in technological development in this special field.

Therefore my ~~XXXX~~ decision comes from the composers excitement about the computer as partner and his willingness to learn the programmed orders for the realization of the compositional work.

The program is the impersonation of the musical mind and the engineer's ability to translate it into technical practicability. Purposely, - random, chance, interaction are excluded at this stage. Likewise, no music-theoretical systems, formal models, given patterns etc. are considered.

The creative process starts with the composition of the first sound, which, in musical connotation, is the first tone. This tone is the result of its particles in the overtone-combination, which can be arbitrarily altered. Attack-time, sustain-time, release-time give the tone a sound-character. Pitch also changes the intensity. Other manipulations, like phase-deviation, vibration or iteration are strongly influential on the sound-information, which is all in all wrongly compared with sound-colour, instead of conceptualized as structure. The first composed tone represents a source of energy or aesthetically speaking, a degree of tension with consequences towards the relationship with the following tones. The chosen selection of all the parts are the composers individual approach to the materialization of his predetermined sound-concept.

Mus 64 95



Already for the composition of the first tone, a comparatively large amount of information must be fed into the computer. Without going into more basic details about the compositorial beginning, it is obvious even at this point, that in continuation of Guido d'Arezzo's traditional music-notation, a new way of notation has to be found, which is able to inform the computer precisely about all particular sound-items, down to the smallest detail.

The computer has to learn the meaning of the partly iconographic and partly symbolic notation, in order to synthesize all given commands.

Therefore, we have to tackle two problems at the same time:

- a) the sound-production
- b) the sound-notation.

In the limited frame of this paper, I may be permitted to give some basic examples of the iconographic notation.

First stage is the drawing off attack - sustain - release within a frame of time - frequency coordinator.

B

The icon is drawn on a net of circles, whose diameter determines the degree of sound-volume. Four points at the end of cross-lines, coordinated to the circle-net, symbolizes reference to the separately drawn informations like overtone-constellation, mixing position, iteration, frequency-modulation etc.

B

The icon face radiates the character of the sound, distinctive from the Cartesian representation, which gives objective digitale data.

The icon-face might become a significant meaning for future audio-visual co-operation during the composing process. Such sensual crossreferences are recognizable also in traditional music-notation. The written music in general, accomplishes the same task as the written letter in the human beings spiritual life. Technically, it supports the memory, morally, it supports responsibility and justification for the formalized idea.

Presently, this generalized and short explanation of the iconographic notation must be sufficient.

We will follow now the central part of an iconographic score of a composition, ~~as can be seen afterwards on the screen of the computer and~~ while listening to the actual composition. I would like to start with some basic concise remarks with regard to new directions in compositorial thinking with the computer as partner.



The fact, that the computer is neither an interpreter nor an agent between composer and receiving listener, changes basically the compositorial process too. On the other hand, common to traditional organisation of sounds is the necessity for creating building-stones which guarantees close relationship ~~XXXXXXXX~~ between all parts of the complete work. Here, the computer entices the composer ^wboards a new thrust into realm of time and space. Liberated from the interpreters bodily limitations, the composer is forced to think in perpetual magnitudes. At the same time he must find for himself conceptual limitations, otherwise he will get lost in time and space, a situation, very much like ~~in~~astronautics.

Just because of the apparently unlimited flight, he must discipline his emotions more than ever and achieve a maximum with a minimum of tools. Therefore, no grammar-like music-theoretical systems can be applied to this new constellations,

The difference between communicative language and musical language is evident more than ever. Words do reflect the outer world, music reflects the inner world of the composer and motivates sensual reflections in the listener. Of course, their are instances of mutual influences. Both ~~have~~ have intellectual proceedings, typical and essential according to their nature. This music-intellectual reasoning can be translated into words, although even this applies only to a limited extent.

This is the point of departure for computermusic-theoretical contemplation. At the outset of all practical considerations for the beginning of the ~~XXXXXXXXXX~~computer-realized composition we shall consciously avoid the fallacy of straining every nerve ~~I~~ in newfangled originality. Convention is not tradition and sensational surprise is not genuine newness. Our past must be purified from sentimental associations, not expressing anymore our contemporary search for different substances. But accumulated experiences from the past are conditional presuppositions for the daring jump into the future. It takes all the courage to set foot on the unknown, without forgetting the acquired.

in this context I am ready to give a few guidelines for the perception of my ETUDE No.1. The motto to this work is the axiom of the humanist of the Middle Ages Nicolaus Cusanus: Coincidentia Oppositorum.

In music , time is coincidental to space. The space is filled with sounds in every direction. As basic sounds I used only three icons, an ethical decision for self-limitation. Therefore the title ETUDE.



We shall listen now to the first part. The sound mutates while changing the inner relationship between its overtones. Consequently, it is not a change of colour, but a constant change of intensity, supported by change of frequencies. Intensity is a result of sound-content, perpetually varying his inner sound-relationship. This is the substantial content of a musical statement. The selflimitation didnt allow for any common melodic expression. There are no motivic formations. This kind of expansion of traditional singable melodic patterns doesnt mean the cancellation of the notion Melos, but rather deducts melodic relationships within the flowing and varying sound-content, thus creating a different melodic notion.

Accentuated points of attention^m originates from sudden changes instead of gradual changes. Those points are marking time, divided into parts. But this is different from a metrical pattern, repeated in bars in traditional style. In our example Rhythm is realized in the meaning of the word, a steady flow. Obviously, such kind of a musical statement depends on the listeners cognitiv abilities. This part closes with a chord, in itself a frequency^a combination of the structured Icons. E 1

The closing chord enters immediately a discussion with two other chords, derived from the first one, followed by a reminiscence of the initial sound, followed by a slyghtly expanded chord-discussion plus varied sound reminiscence. The end of this sound overlaps with the start of the second part.

E2

The second part deals only with precisely temporal sounds. Therefore it constitutes a total contrast to the first part. Here, inner change of sound-relationship ~~XXXXX~~ never comes gradually. It arises suddenly with the appearance of the short temporal sound. The musical idea is shifted to another compositorial aspect, namely compactness opposite transparency. In addition: we may change the duration of the icon and the duration of the time-interval between the icons. We may contract or expand the time-lapse of any lengths of parts and in any proportion of time-alteration.

Simultaneously, the meaning of the content changes. Again, an extended dispute between the chords is leading over to the third part.

E3

Here we contact again the hidden melodic indications of the first part. But this time in a more singable fashion. Clearly defined pitches in conventional terms mingle with microtones. Glissandi mingle with measured intervals. The overall result is nearer to an instrumental than to a vocal line. Counterpointal additions use time-shifting and are creating degrees of



E4

compactness.

The ETUDE closes with short condensed references to data of the compositions past.

Susanus' Coincidentia Oppositorum is the intellectual property for the dramatisation of the musical idea.

E5