ABSTRACT

A software package for remote user utilization, functioning as a permanent service is presented. TELEATAU works in "Free-running" environment and it is accessible from any user of BITNET - EARN - NORTNET networks. Its main characteristic is to dispose of a library of musical pieces, and several programs for automatic generation, transformation and elaboration of musical pieces, and music analysis.

1. INTRODUCTION

Since 1969, the Musicalological Division of CICLOE started a series of studies about musical telecommunication, with the objective to put at remote users disposal (via software packets) and the library of musical pieces. The purpose was to enable a remote service. The TELEATAU (Mencini 1982) software package has been realized so as to allow any user of BITNET - EARN - NORTNET networks (which cover USA, Canada, West Europe, Japan, Israel, Australia and New Zealand) to access to this service.

TELEATAU is structured in such a way as to easily expand the available commands, especially those concerning the automatic generation of musical structures and the music analysis. Its operative philosophy is similar to that one of TROMPOS system (Bolognani and Grossi 1979).

The available facilities of TELEATAU are focused on the following fields of application:

- musical pieces encoding
- automatic generation
- elaboration and processing of musical
- library of musical pieces management
- music analysis

2. THE TELEATAU STRUCTURE

The software package TELEATAU is active on the virtual machine MEXICUS located to the CICLOE Musicalological Division.

The main feature is its "Free-running" environment, to which the access is possible by a particular procedure. After entering in this kind of environment, TELEATAU accepts any command, in the form of files, coming from any authorized network user. As we will see later, it performs the received commands and sends back to the remote user the result of the execution.

The package has access to the library of musical pieces of the Musicalological Division, from which is possible to ask for any sort of information (name of author, pieces and so on) as well as to use musical pieces for subsequent elaboration. An easy usable every system makes the management of the library possible.

TELEATAU works on files having particular filetype with denoted a well defined content. Filetype can be SOURCE to identify a file containing a musical pieces written by the TELEATAU encoding system. OBJECT filetype identifies a file which contains the numeric translation of a SOURCE file. An OBJECT text can also be created by the automatic generation algorithms that allows the user to have a RIB, NEWRIB or RIBNEW filetype. Other files generated by the package SEARCH DATA, containing the results of the queries about the library, and ANALYSIS DATA including the results of the music analysis program performance. Error messages and the protocol of the commands performance can be examined in the file WORK TRACE.

Moreover TELEATAU in "Free-running" environment, it waits for files coming from network users. If the virtual reader contains a file the system examines the filename and filetype, as well as the user and node identifiers of the sender. If the filetype is SOURCE or OBJECT then the TELEATAU loads on disk the file and stores it in the musical pieces library. Filetype RIBNEW replies the change in RIB

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The Teletau command facility

Teletau has a group of commands used for the reeling, storing, processing and playing of musical text. For music automatic generation, management of the library and for metric analysis (Comilli and Moog). Next elaboration commands allow to the user to specify options so as to restrict the transformation to be operated on a single or a group of voices, or on a well defined part of the musical text.

For example, by means of the available options, the user can specify from which sound, bar or hundredth of second the elaboration starts or ends. Also the option to select random values is allowed. Some commands allow to operate a linear transformation, that is, transformation in which the pitch, duration or timbre change occurs gradually.

The different commands may be grouped in the following classes, whose names give an impression on the functions they perform.

- Musical piece creation and update
  (READ, SOURCE, TEXT)
- Automatic generation of musical structure
  (CREATE)
- Re-arrangement and transformation of musical pieces
  (SORT, LISTA, SOURCE, INVERT, MODIFY, RENAM, SCALE, SHUFFLE, STAGNAR, TEMPER)
- Execution of musical pieces
  (PLAY)
- Music library management
  (CHAIN, EXCHANGE, INSERT, LOAD, SAVE, SEARCH, TYPE, TL Type)
- Metric analysis
  (ALML, ALML, ALML, ALML)
- Code generation for local sound synthesis system
  (GENERATE)

The use of the commands is aided by help facilities. By the HELP command it is possible to query information about the format of the available commands, as well as Teletau general information available on-line.

3.3 Teletau sound synthesis facilities

As remarked above, Teletau does not support a well defined sound synthesis system. But as we have seen, beside the elaborations that do not need sound output (metric analysis program execution or queries about the library), it has several commands devoted to the processing of musical text and sound. Therefore, the user has to translate in a suitable code the elaboration performed by the Teletau. In some experiments carried out by the...
Musicological Division, a personal computer has been used as an intelligent terminal as to function as a conventional terminal of a virtual machine and to drive a sound synthesizer through a personal computer connected to a sound card. The system is connected to a Soundchaser system.

In this case, Telettu generates a file with a suitable Apple code, after the execution of the requested commands. The file can contain a piece of the library as well as a particular elaboration of it or an automatic generation of a musical structure.

After having received the file containing the elaboration, the user can play or store it by means of local commands.

We are planning other experiments using a LSI and a fairlight as sound devices.

4. CONCLUSION

As a conclusion we would like to emphasize the following points of our work:

a) The importance to realize a permanent service for people who can quickly obtain different kind of elaborations, analytical or compositional, and not have the access to a library of musical pieces.

b) The utility of this software tool by a wide range of users such as music theorists, composers, students and teachers.

The system is currently used in the Computer music course held at the Conservatory of Music "L. Cherubini" in Florence.

REFERENCES

