



## CDP Release 6 – The New Software

### Featuring Multi-Channel Support for Composers

At the heart of **Release 6** is a fairly large set of programs to handle playback, soundfile management and music composition aspects of multi-channel soundfiles. These include a large program set by Trevor Wishart and a much-extended *Multi-Channel Toolkit* by Richard Dobson. The latter is now integrated into the CDP programs and documentation. There is also a raft of fixes to existing programs, many improvements to *Sound Loom*, and a number of other new programs.

Let's have a closer look.

#### MULTI-CHANNEL PLAYBACK

You will notice in Release 6 that both PAPLAY and PVPLAY now handle multi-channel soundfile playback. PVPLAY is recommended as your default player, because it handles both sound and analysis files. When appropriate, the **-i** flag is used for immediate playback (i.e., without user intervention). It does not have to be set for *Sound Loom* or *Soundshaper*, which set it internally, but it might be needed for Terminal/Command Line/Batchfile use. PLAYSFX and PLAY24x are now deprecated and have been removed from the system. **NB:** The *Sound Loom* file *playcmd.cdp* (which is a text file that can be edited) in `/_userenv` should read just '**pvplay**' NOT '**pvplay -i**' as it may appear in some distributions.

A quick look at the manual pages or usage for PAPLAY and PVPLAY reveals that there are several issues regarding multi-channel playback. One is 'device', i.e., the hardware for playback. You will need to consider how many channels you want to work with in order to choose (and purchase) an appropriate soundcard. Note the range of input/output options. This is a major decision which you should ponder and research carefully.

A second issue is 'format'. There are two aspects here. One is whether the soundfile is in a standard wav/aif multi-channel format, or whether it is Ambisonic. We support both. Then there is the matter of speaker layout, and you will notice that there is a range of input/output options that can be selected in the play program. FMDCODE in the *Multi-channel Toolkit* provides a way to 'decode' Ambisonic files to a variety of speaker layouts.

#### MULTI-CHANNEL UTILITIES

Most of these are contained in Richard Dobson's extended *Multi-Channel Toolkit*. You will notice that there are facilities to copy, extract channels, interleave, join, mix, and see properties. Other utilities deal with Ambisonic soundfiles, such as applying an Ambisonic format to a mono soundfile. Reordering soundfile channels and dealing with speaker layouts completes the picture. All of this is integrated into the Release 6 documentation and program list. Note the speaker layout diagrams in FMDCODE.

#### MULTI-CHANNEL COMPOSITION

Trevor Wishart's Multi-Channel Program Set deals with composition tools for multi-channel soundfiles.

- Note that TEXTURE SIMPLE now has multi-channel facilities and the new WRAPPAGE extends brassage to multi-channels.
- FRAME SHIFT, MCHANPAN and MCHSTEREO are the key programs for diffusion: that is, the placement/movement of soundfiles in/around the speaker layout.

- Other programs create special effects, such as FLUTTER (multi-channel distributed tremolo), MCHANREV (multi-channel reverberation), MCHITER (iterate, scattering in multi-channels), MCHZIG (read back and forth while moving between channels), MCHSHRED (shred), and STRANS MULTI (transpose in a multi-channel context).
- Facilities for creating and mixing multi-channel files complete the package: MTON, MULTIMIX CREATE and NEWMIX.

Working with multi-channel soundfiles is going to take a fair amount of research and experimentation. We welcome your feedback regarding the clarity of the documentation, which has not been easy to write and no doubt can be improved in many ways. *The File Formats & Codes* document has not been updated with the multi-channel file formats yet. It will be updated a bit later when users have had more experience and provided some feedback.

## ENVNU

The ENVNU group extends envelope handling with a couple of new programs. EXPDECAY implements a 'true exponential' decay (very gradual and smooth), improving on the current linear approximation in the system. The other new program here, PEAKCHOP, plays with the width of soundfiles around peaks. The salient sonic features are whether these peaks occur at regular or irregular time intervals, overall tempo, and the correlation between peak width and recognisability of the source soundfile. It is a delightful new rhythmic tool and great fun to work with.

## ONEFORM

This new Group deals with a single formant-envelope extracted from a source at a specific time. Such a single formant-envelope can be imposed on an analysis file or combined with a binary pitch data file from REPITCH GETPITCH to create a new analysis file/sound. If the single formant-envelope has a distinct timbre – which is the whole point – such as a specific vowel sound, it will 'colour' the analysis file accordingly. So choose the location of your single formant-envelope carefully.

## SPECNU

SPECNU reworks and extends the soundfile 'cleaning' operations. CLEAN eliminates noise, REMOVE attempts to take out a pitched component from the spectrum, SLICE divides an analysis file into separate bands and saves each as a separate analysis file, and SUBTRACT approaches the 'clean' process from a different angle. An appendix documents the **Cleaning Kit** on the **Music Testbed** of *Sound Loom*, which further extends these facilities.

## R6OTHER

We have put into this section a number of separate programs. Notable among them is FASTCONV, a (fast!) multi-channel convolution program by Richard Dobson, and RETIME by Trevor Wishart. The latter presumes an input soundfile with 'definable peaks', i.e., a series of amplitude peaks, regularly spaced or otherwise. RETIME has 14 modes with which to process the timing of these peaks, so this is another much-needed program with which to play with rhythms.

## SOUND LOOM

The **Specialhelp** folder contains a number of documents that provide more detailed information on various key facilities in *Sound Loom*.

- *twSLoom\_v13\_updatesinfo.html* describes all the updated features in Version 13 – there may be a later version on Trevor's Website.
- *FOF\_sustain.html* describes how to sustain a FOF within a sound in order to produce a 'song'.
- *SL-CleaningKit.htm* provides a comprehensive discussion of 'cleaning' a soundfile with the CDP tools -- also accessed from the SPECNU manual.

- *SL-QIKEDIT.html* describes a mind-boggling environment based on mixing in which to create a piece. You can even modify a sound from within the mix using any CDP process.
- *SL-TableEd.htm* has been edited to clarify its use.