

Guide to BOOK Chapter 12 Examples: *Eric Lyon*

A Modular Synthesizer Simulation Program

synmod

As a first step, all of the code for this section must be copied from the DVD-ROM to your hard drive or other dynamic storage medium, so that you can create new files on your disk (which you cannot do in a directory of a finalized DVD-ROM).

This program, *synmod*, is developed in stages in the main text. All of its code is contained in a code file, *synmod.c*, and an include file, *synmod.h*. Compilation is done in a Terminal window as follows:

```
$ gcc -o synmod synmod.c
```

Once *synmod* has been compiled, it may be executed as follows, also in a Terminal window, where “datafile” contains data in a format described in the main text.

```
$ synmod < datafile
```

The first version of *synmod* is found in the folder **take1**, containing the files *synmod.h* and *synmod.c*, along with a datafile named *mpatch1*. After compiling *synmod* as shown above, execute the program in a terminal window as follows:

```
$ synmod < mpatch1
```

The second version of *synmod* is found in **take2**. It is executed on three data files found in the folder: *mpatch1*, *mpatch2* and *mpatch3*.

```
$ synmod < mpatch1
$ synmod < mpatch2
$ synmod < mpatch3
```

The third version of *synmod* is found in **take3** and features a MIXER. It is applied to the data file *mpatch3*. The program continues to be executed as shown above.

The fourth version of *synmod* (featuring ADDITIVE and FM capabilities) is found in **take4**.

NOTE: This is the first version of *synmod* that generates complete **Csound** code. Its output is redirected into a **.CSD** format file that can be directly run by Csound, as shown below. For a description of the **.csd** file format, see:

<http://www.csounds.com/manual/html/CommandUnifile.html>

If you are reading this book, you will almost certainly have Csound installed on your computer; but just in case you don't, the current version of Csound can be downloaded from:

<http://www.csounds.com/>

where you can find the version of Csound most appropriate to your computer and OS.

The data files included in this folder are `mpatch4`, `FM`, `Tonal` and `More_Complex`. After compiling this version of *synmod*, create the CSD file as follows:

```
$ synmod < mpatch4 > mpatch4.csd
```

Then play it in real-time with Csound.

```
$ csound -odac mpatch4.csd
```

Do the same for the other data files in this folder and subsequent folders.

The version of *synmod* that features OSCILLATOR FEEDBACK is found in **take5**. It is used in the same way as `take4`. It is used on the data files `feedback1` and `feedback2`.

User specified DURATION is added to the version of *synmod* found in **take6** that is used with the data file `feedback2`.

The INTERPOLATED NOISE enhancement of *synmod*, found in **take7**, is used on the data files `noise1`, `noise2` and `noise3`.

SAMPLE AND HOLD is added to the version of *synmod* found in **take8**. It is used on the data files `sah1`, `sah2` and `sah3`.

Finally, a Moog FILTER is added to *synmod* in **take9**. It is used on the data files `vcf1` and `vcf2`.

If you would like to permanently install *synmod* for further experimentation with Csound, simply copy this last version of file *synmod* to `/usr/local/bin`; but you will need root permission to do so.