

# SOUNDLAB: Lazy signal combinators

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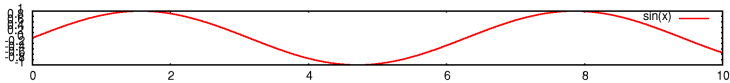
# 1 HOW DOES THIS WORK?



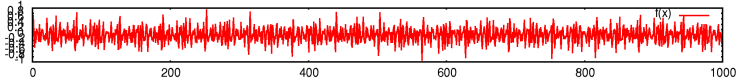
The workflow.

# 1.1 Whats a signal?

The sum of sines, e.g.



Sine.



Sine noise.

A function which maps time to amplitude  $(-1..1)$  e.g. `#'SIN`.

## 1.2 Recording sound

**Time (seconds) → Amplitude (-1..1)**

**(sample <signal> <stream>)**



Sampling simplified.

## 2 SIGNAL COMBINATORS

```
(defun chord (&rest signals)

  (lambda (x)
    (/ (loop for signal in signals
              sum (funcall signal x))
       (length signals)))

  (divide (apply #'add signals)
          (flatline (length signals))))
```

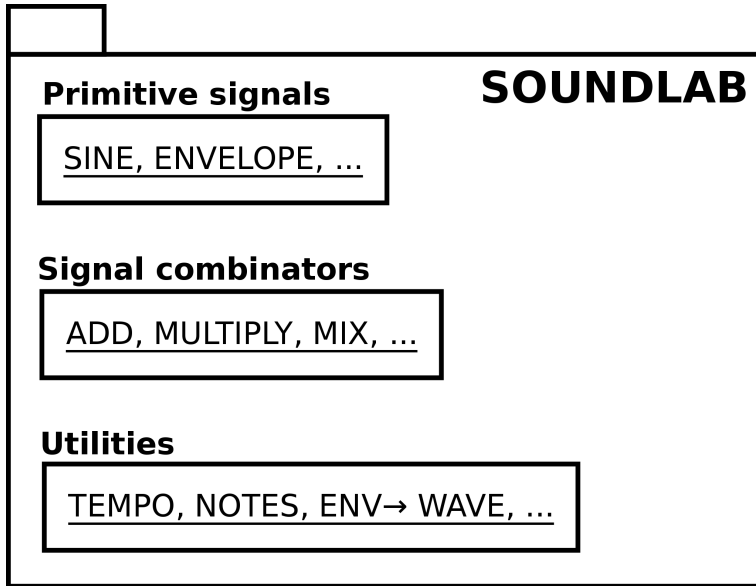
Implementing CHORD.

```
(FUNCTION (&REST (FUNCTION (REAL) REAL))  
          (FUNCTION (REAL) REAL))
```

A common interface for time and amplitude modulation.

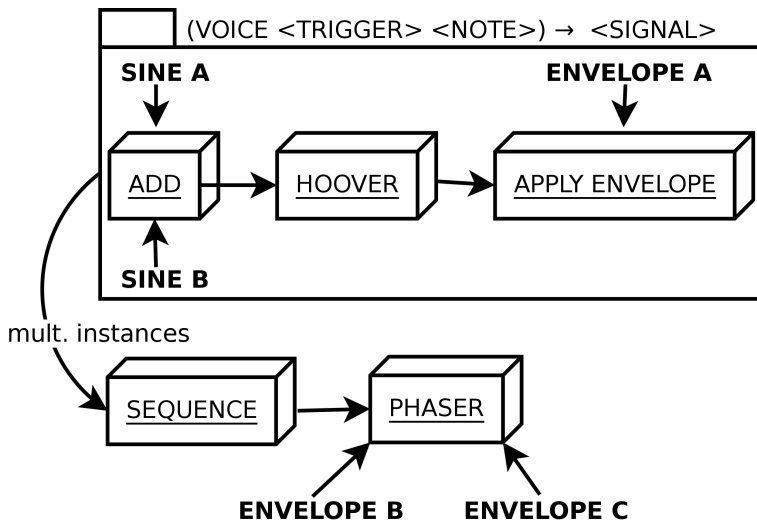
### 3 OVERVIEW OF THE LIBRARY



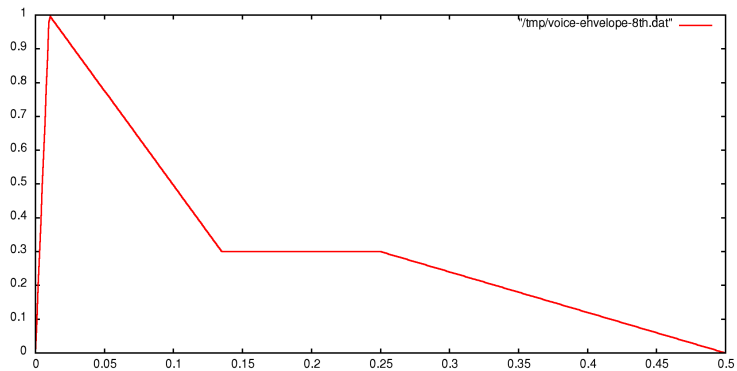


Library overview.

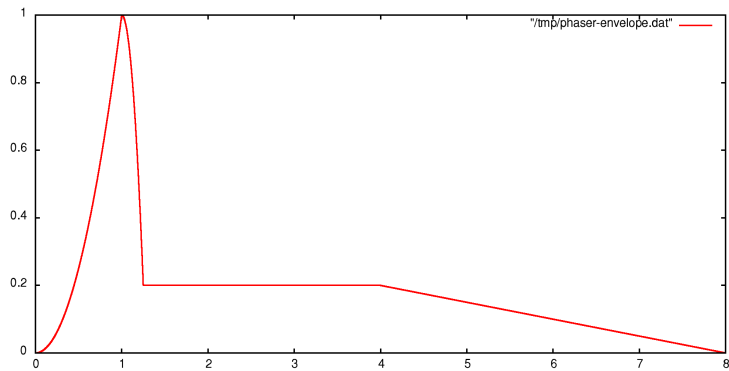
## 4 USING SOUNDLAB



What we are going to do.



Voice envelope.



Phaser envelope.