Songlib: draw

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The *draw* family of functions is used to smoothly play multiple notes from a single sample. The intent is to play multiple notes as does a violinist when changing the fingering on the neck of the violin during a a single draw of the bow.

```
void draw(double beats,int instrument,int octave,int pitch,double length,...,(int) 0);

void ndraw(double beats,int instrument,int numberedNote,double length,...,(int) 0);

void adraw(double beats,int instrument,int count,int *octaves,int * pitches,double *lengths);
```

The *draw* function is a variadic function for playing multiple notes from a single sample. The sample is given by the instrument and the first triple (*instrument* and *octave*,*pitch*, and *length*). The variadic part contains a series of (*octave*,*pitch*,*length*) triplets that designate the subsequent notes and durations to be resampled from the given sample. The variadic part is terminated by a zero. Since subsequent notes start playing where the previous note left off in the given sample, the transition does not produce any discontinuites.

The *draw* function is normally used when the notes have a distinctive attack and the attack is not desired for short subsequent notes.

For example, this use of draw plays a little trill:

```
draw(W,recorder,
    4,C,Q,
    4,D,Q,
    4,C,I,
    4,D,I,
    4,C,I,
    4,D,I,
    4,C,Q,
    (int) 0
    );
```

The last triplet designates the pitch that is used of fill out the total number of beats. If there isn't enough data in the original sample, silence is played.

The *ndraw* function is similar to *draw* but takes numbered notes instead of octave/pitch pairs. The variadic part consists of *int numberedNote* and *double length*) pairs.

The example call to *draw* above could be equivalently rendered as:

```
ndraw(recorder,
    C4,Q,
    D4,Q,
```

```
C4,I,
D4,I,
C4,I,
D4,I,
C4,Q,
(int) 0
);
```

Both *draw* and *ndraw* are wrapper functions for *adraw*. The *adraw* function takes three parallel arrays of size *count*. These arrays are filled with octave/pitch/length triplets.

There are also two convenient wrapper functions for *draw* when the goal is to play two notes:

```
void resolve(int instrument,
    int firstOctave,int firstPitch,double firstBeats,
    int secondOctave,int secondPitch,double secondBeats);

void nresolve(int instrument,
    int firstNumberedNote,double firstBeats,
    int secondNumberedNote,double secondBeats);
```

The following two calls are equivalent:

```
resolve(W,violin,3,C,Q,3,D);
draw(W,violin,3,D,0.0,3,C,Q,D3,W,(int) 0);
```

Transitions between notes

The transistions between notes within the *draw* family is controlled by the variable *drawRamp*. The *drawRamp* setting specifies the number of seconds it takes for a preceding note to slide into the following note, using a linear ramp. The default setting of *drawRamp* is 0.25 seconds. You can get and set the *drawRamp* with the functions:

```
double setDrawRamp(double seconds)
double getDrawRamp(void)
```

See also: playingNotes,