

positions26 takes twenty-six input audio files and combines them into one first-, second- or third-order ambisonic<sup>1</sup> file, with each input file's sound placed as if coming from a cardinal point<sup>2</sup> in three-dimensional space.

It searches the current directory for a.wav or ULF.wav and depending which it finds proceeds as detailed below. (If it finds ULF.wav it ignores any 'alphabet' files.) The search is case-sensitive!

## 1 Positions

If the file ULF.wav is found then this is placed at 'up-left-front', the other twenty-five points are then searched for and placed. If any are missing, a warning is printed.

## 2 Alphabet

In the absence of ULF.wav then a.wav is searched for, as well as the remaining 25 files (b.wav to z.wav). The sounds are randomly assigned to the 26 positions. A 'cribsheet' is produced stating which file have been assigned to which position, as well as an answer sheet allowing subjects to state what they thought the origins of the sounds were.

## input files

The program requires 26 mono input files in wav format.

The 'positions' option produces a normal 'speaker test' output.

As the normal output was criticised as inducing 'auto'-suggestion, then the option of substituting randomly assigned letters was also given.

Obviously you can produce files in the language of your choice.

Equally, you are not restricted to *a, b, c, ...*. You could use twenty-six different musical instruments, but coping with your sub-

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<sup>1</sup>B-format FuMa

<sup>2</sup>Well, not, there are four 'cardinal points' on a plane, and thus six in three-dimensional space, so strictly the six cardinal points and their twenty intermediate points.

jects guessing both the identity of the instrument and the location of the sound may give unpredictable results(!).

## **options**

None really (except for specifying second- or third-order<sup>3</sup>).

Running the program as is will produce `positions26.wav` (and; if in 'alphabet mode', also `positions26.tex`).

Running `positions26 test123` will produce `test123.wav` (and; if in 'alphabet mode'; also `test123.tex`).

The Latex files can be converted to PDF with `pdflatex` or its Mik-tex equivalent.

## **requirements**

This program requires **Perl**, **SoX**, and **Ambisuite**, see website below for further details.

## **annexes**

A sample answer sheet, a sample crib sheet and the GNU General Public License follow.

## **website/contact**

<http://mchapman.com/amb/soft/>

## **making input files**

This is really an exercise left to the user.

It should though be noted that ambient (background) noise should be as low as possible, as this will not appear as general background

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<sup>3</sup>To do so you *must* specify an output file name, that is something like `positions26 test123 2` or `positions26 test123 3`, where "2" and "3" specify the order. The default is first-order. If the order is specified as anything else the program will silently produce first-order output!

noise, but also move from position to position (and may not be æsthetic!).

If making an ‘alphabet’ then one spoken letter may prove too much of a challenge for some subjects to localise. Using “A is for apple”, or whatever may prove more practicable.

Sample outputs in .amb format are on the Ambosonia site (<http://www.ambosonia.com/>) and you may wish to sample these. The quality of vocalist and of recording can though, the author is sure, be improved upon!

## **sample input files**

A set of positions and an alphabet are included (though, as stated above, the user should be able to at least equal their quality). (The alphabet is with apologies to Hilaire Belloc.)

For download they are compressed as FLAC files. They need decompressing. Many tools will do this, you could try:

```
sox a.flac a.wav
```

for example.

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January 2009.

**file: fred**

ULF:	UF:	URF:
LF:	F:	RF:
DLF:	DF:	DRF:

UL:	U:	UR:
L:		R:
DL:	D:	DR:

ULB:	UB:	URB:
LB:	B:	RB:
DLB:	DB:	DRB:

file: **fred**

*answers*

ULF: <i>n</i>	UF: <i>j</i>	URF: <i>g</i>
LF: <i>o</i>	F: <i>h</i>	RF: <i>q</i>
DLF: <i>i</i>	DF: <i>z</i>	DRF: <i>k</i>

UL: <i>b</i>	U: <i>m</i>	UR: <i>f</i>
L: <i>e</i>		R: <i>x</i>
DL: <i>d</i>	D: <i>r</i>	DR: <i>t</i>

ULB: <i>s</i>	UB: <i>a</i>	URB: <i>c</i>
LB: <i>v</i>	B: <i>p</i>	RB: <i>u</i>
DLB: <i>y</i>	DB: <i>l</i>	DRB: <i>w</i>

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<one line to give the program’s name and a brief idea of what it does.>

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