

NAME

pc — translate semitone representation or pc to pitch-class

SYNOPSIS

pc [-atx] [*inputfile* ...] [> *outputfile.pc*]

DESCRIPTION

The **pc** command transforms various pitch-related inputs to corresponding numerical pitch-class equivalents: C=0, C-sharp/D-flat=1, D=2, . . . B=11. It outputs one or more Humdrum ****pc** spines containing pitch-class values corresponding to each of the input pitch tokens. For example, the ****semit**s token “-13” is transformed to 11 (pc).

The **pc** command is able to translate any of the pitch-related representations listed below. In each case, a tuning standard of A4 equals 440 hertz is assumed. For descriptions of the input and output representations refer to Section 2 (*Representation Reference*) of this reference manual.

It is recommended that output files produced using the **pc** command should be given names with the distinguishing ‘.pc’ extension.

**cents	hundredths of a semitone with respect to middle C=0 (e.g. 1200 equals C5)
**freq	fundamental frequency (in hertz)
**kern	core pitch/duration representation
**pc	pitch-class representation
**pitch	American National Standards Institute pitch notation (e.g. “A#4”)
**semit s	equal-tempered semitones with respect to middle C=0
**solfg	French solfège system (fixed ‘doh’)
**specC	spectral centroid (in hertz)
**Tonh	German pitch system

Input representations processed by pc.

Note that the **pc** command is also able to reprocess pitch-class (****pc**) inputs. This allows pitch-class representations to be translated from numeric-only (0,1,2,3 ... 9,10,11) to mixed alphanumeric (0,1,2,3 ... 9,A,B) or vice versa. (See documentation for ****pc** (2).)

OPTIONS

The **pc** command provides the following options:

- a output alphanumeric representation (where A=10, B=11)
- h displays a help screen summarizing the command syntax
- t suppresses printing of all but the first note of a group of tied ****kern** notes
- x suppresses printing of non-pitch-class data

Options are specified in the command line.

The **-a** option invokes an alternative (alphanumeric) form of the ****pc** output where the upper-case letters 'A' and 'B' are substituted for the pitch-class integers 10 and 11, respectively. In addition, the input alias values 'T' (ten) and 'E' (eleven) are transformed to 'A' and 'B'. Encodings using mixed alphanumeric values are often better suited to pattern-matching and searching tasks. Encodings using purely numeric values are especially useful when the representation is to be processed numerically.

The **-t** option ensures that only a single output value is given for tied ****kern** notes; the output coincides with the first note of the tie.

Note that **pc** will round-off frequencies and non-integer semitone input values to the nearest pitch-class. Hence, an input ****semit**s data token of 5.6 will be rendered in the ****pc** output as the value 6. Similarly, the input ****freq** value 452.1 will be rendered in the ****pc** output as the value 9.

In the default operation, **pc** outputs non-pitch-related signifiers in addition to the pitch-class value. For example, the ****semit**s token "X15yz" will result in the output "X3yz" — that is, after translating 15 to pitch-class 3, the "Xyz" signifiers are retained in the output. The **-x** option is useful for eliminating non-pitch-class-related signifiers from the output.

EXAMPLES

The following example illustrates the use of **pc**. The input contains four spines — one of which (****foo**) cannot be processed by **pc**.

```
!! 'pc' example.
**semits    **kern    **pc    ~**foo
*M2/4        M2/4      *        *
=1           =1        =1        .
8x           8ee-      abc9 xyz10 A
.            .          BCD       A
#18@         8ff        .         B
23.1 -16     8dd-      .         B
(-2)         8d-       8 7.      C
-12...       .         0.8       C
=2           =2        =2        D
[3.0abc19    [4a-      (2) 3     D
&]           4a-]      6&?       E
=3           =3        =3        E
r            2r        5 4       .
===          ==        ===== .
*-           *-        *-        *-
```

Executing the command

```
pc -xt input > output.pc
```

produces the following result:

```
!! 'pc' example.
**pc        **pc        **pc        **foo
*M2/4        M2/4      *        *
=1           =1        =1        .
8            3          9 10      A
.            .          B         A
6            5          .         B
11 8         1          .         B
10           1          8 7       C
0            .          0         C
=2           =2        =2        D
3            8          2 3       D
.            .          6         E
=3           =3        =3        E
r            r          5 4       .
===          ==        ===== .
*-           *-        *-        *-
```

Both processed and unprocessed spines are output. Notice that the `**pc` value 'B' in the token 'BCD' has been maintained in the first measure. Notice that for the data tokens in the first spine of measure 2, only the first numerical value in the input data tokens is processed. More than one numerical value is output only if the input token is truly a multiple-stop (as in the third spine of measure 1). Also notice that the tied note in the second spine at the beginning of measure 2 has been rendered as a single value '8' (due to the `-t` option).

FILES

The file *x_option.awk* is used by this program when the **-x** option is invoked.

PORTABILITY

DOS 2.0 and up, with the MKS Toolkit. OS/2 with the MKS Toolkit. UNIX systems supporting the *Korn* shell or *Bourne* shell command interpreters, and revised *awk* (1985).

SEE ALSO

****cents** (2), **cents** (4), ****freq** (2), **freq** (4), ****iv** (2), **iv** (4), ****kern** (2), **kern** (4),
****nf** (2), **nf** (4), ****pc** (2), ****pcset** (2), **pcset** (4), ****pf** (2), **pf** (4), ****pitch** (2), **pitch** (4),
****semits** (2), **semits** (4), ****solfg** (2), **solfg** (4), ****specC** (2) **specC** (4), ****Tonh** (2), **tonh** (4)