NAME

pcset — convert pitch and pitch-class information to set-theoretic representations

SYNOPSIS

pcset [**-c**] [**-n**|**p**|**v**] [*inputfile* ...]

DESCRIPTION

The **pcset** command is used to generate and convert between various set-theoretic representations.

By default, the output is the Fortean pitch-class set type (`**pcset`). Alternatively, the user may choose to output the corresponding *normal form* (`**nf`) or the more succinct *prime form* (`**pf`) or the associated *interval vector* (`**iv`). See REFERENCES below.

In addition to accepting `**semits` or `**pc` inputs, **pcset** can also process `**nf`, `**iv`, `**pf` or `**pcset` inputs. This permits the user to determine the normal form, prime form or interval vector for a given pc-set, or the interval vector for a given pc-set, prime form, or normal form, etc.

For all of the above translations, **pcset** also provides a *complementation* operator, where output values corresponding to the pitch-class set complement. For example, when the complementation option is invoked, an input consisting of the pitch-classes (0,4,7,10) would produce an output pertinent to the complementary set (1,2,3,5,6,8,9,11). Complementation can be applied to any accepted input type, including normal form, prime form, interval vector, and pc-set. Note that if the input consists of all twelve pitch-classes, **pcset** produces a null token as the set complement.

When provided with `**semits` or `**pc` inputs, **pcset** treats each input record as a set of pitches. Unisons and other pitch-class duplications have no effect on the output. Rests within a set of pitches are ignored; where an input record consists solely of one or more rests, a null-token is output.

The **pcset** command is able to translate any of the representations listed below. For descriptions of the various input representations (including `**pcset`) refer to Section 2 *(Representation Reference)* of this reference manual.

It is recommended that output files produced using the **pcset** command should be given names with the distinguishing extensions '.pcs', '.nf' '.pf' or '.iv' — depending on the selected option.

`**iv`	interval vector representation
`**nf`	normal form for pitch-class sets
`**pc`	pitch-class representation
`**pcset`	Fortean pitch-class set name
`**pf`	prime form representation
`**semits`	equal-tempered semitones with respect to middle C=0 (e.g. 12 = C5)

Input representations processed by **pcset**.

OPTIONS

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

-c generate output for set complement
-h displays a help screen summarizing the command syntax
-n output normal form (`**nf`) spine
-p output prime form (`**pf`) spine
-v output interval vector (`**iv`) spine

Options are specified in the command line.

By default, the **pcset** command outputs a `**pcset` representation.

The **-n** option causes **pcset** to output normal form (`**nf`) data instead of `**pcset` data. "Normal form" is a standard way of representing the interval structure of any arbitrary set of pitch-classes.

The **-p** option causes **pcset** to output the prime form (`**pf`) for the input. Prime form is analogous to rearranging notes in a chord so that the spelling is in root position, close position, transposed so that the root of the chord is C. By way of example, any major chord (having any root, in any inversion, with any spelling) will have the normal form: 0,4,7 — namely, a given (basic) pitch, plus a pitch 4 semitones above than the basic pitch, plus a pitch 7 semitones above the basic pitch. (See REFERENCES.)

The **-v** option causes interval vector information (`**iv`) to be output rather than `**pcset` data. All pitch-class sets can be characterized according to the possible interval-classes that can be constructed. The six-element interval-vector specifies the abundance of various interval-classes from 1 semitone to 6 semitones. (See REFERENCES.)

Note that the **iv** command, the **nf** command, and the **pf** command are aliases for `pcset -v`, `pcset -n` and `pcset -p` respectively.

EXAMPLES

The following command outputs the interval vectors for the sets formed by successive sonorities in the input file `webern`:

```
pcset -v webern > webern.iv
```

The following command outputs the Fortean set type for the complement of the sonorities

given in the input file `berg`:

```
pcset -c berg > berg.pcs
```

The following command outputs the normal form representation for sets formed from successive sonorities in the input file `boulez`:

```
pcset -n boulez.nf
```

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

context (4), ****iv** (2), **iv** (4), ****nf** (2), **nf** (4), ****pc** (2), **pc** (4), ****pcset** (2), ****pf** (2), **pf** (4), ****semits** (2), **semits** (4)

REFERENCES

Allen Forte, *The Structure of Atonal Music*. New Haven: Yale University Press, 1973.

John Rahn, *Basic Atonal Theory*. New York: Longman Inc., 1980.

Straus, J. *Introduction to Post-Tonal Theory*. Englewood Cliffs, N.J.: Prentice Hall, 1990.