

NAME

fields — list spine/field structure of a Humdrum file

SYNOPSIS

fields [-gils] [-r *regex*] [*inputfile* ...] [> *outputfile.ftf*]

DESCRIPTION

The **fields** command works in conjunction with the **-t** option of the **extract** command to permit highly selective extraction of data from a Humdrum file. This command is used only rarely; it is invoked when the more usual options of **extract** fail to provide sufficient flexibility in isolating certain Humdrum data.

The **fields** command outputs a so-called “field-trace file” for a given Humdrum input. This file can be edited by the user and then used with the **extract** command to select data from the original input file. For repetitive tasks, the field-trace file is more convenient than manual editing of the input file.

When invoking the **fields** command, the user specifies the types of records to be used as reference points in the editing task. The command then produces a listing of record numbers as well as the corresponding number of fields for each record of the specified type. For example, the user may wish to use spine-path changes as reference points for editing an input.

Each output record from the **fields** command consists of three pieces of information, such as illustrated below:

```
13      1-10      # { (4.g#  4.b  ...
```

The first field consists of a single number identifying the corresponding line number of the input file. The second field consists of two numbers separated by a dash. The second number indicates the number of currently active spines. The number prior to the dash is always 1 (see below). The third field is a comment beginning with the octothorpe (#) and continuing with the first ten characters of the corresponding line from the input file. The purpose of this comment information is to help orient the user when editing a field-trace file.

Field-trace information can be requested by record-type: **-g** for global comments, **-l** for local comments, **-i** for exclusive and tandem interpretations, and **-s** for spine-path indicators. More than one record-type can be requested. For example, when the **-gl** options are invoked, the **fields** command will produce an output line each time a local or global comment is encountered in the input. The line number and number of fields will be given in the output.

For global comments, the number of fields output for the current line is equal to the number

of fields for the most recent non-global comment record. For spine-path records, the current record as well as the next record are output so that the user knows the changes in the number of spines.

A **-r** option permits the user to specify a *regular expression*; field-trace data is output for each record matching the specified regular expression.

Note that when an unedited field-trace file is used in conjunction with **extract -t**, the output is identical to the input. By modifying the field-range (second column in the output), the user can select which specific fields will be output.

It is recommended that output files produced using the **fields** command should be given names with the distinguishing '.ftf' extension.

OPTIONS

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

- g** identify lines with global comments
- h** displays a help screen summarizing the command syntax
- i** identify any interpretation record
- l** identify lines with local comments
- r *regexp*** identify all lines matching *regexp*
- s** identify lines with spine-path indicators

Options are specified in the command line.

SAMPLE OUTPUTS

Consider by way of illustration the following input file:

```
!! 'fields' example
**numbers **alpha **symbols
*          *betics *
14         abc     %@
!some      !local  !comments
3          .       #&
*_         *       *
jkl        $+
!! a global comment
*^         *
uvw        xyz     &%
*          *+      *
*          *       **numbers *
mno        pqr     87      {^}
*_         *_      *_      *_
```

With the **-g** option, the fields command will produce the following output:

```

1  1-1  # Line 1 must appear in the file.
9  1-2  # !! a globa .... ~

```

With the **-l** option, the fields command will produce the following output:

```

1  1-1  # Line 1 must appear in the file.
5  1-3  # !some      !loc ....

```

With the **-s** option, the fields command will produce the following output:

```

1  1-1  # Line 1 must appear in the file.
7  1-3  # *-      *      * ....
8  1-2  # Line after path indicator record
10 1-2  # *^      * ....
11 1-3  # Line after path indicator record
12 1-3  # *      *+      * ....
13 1-4  # Line after path indicator record
15 1-4  # *-      *-      *-      * ....

```

With the **-i** option, the fields command will produce the following output:

```

1  1-1  # Line 1 must appear in the file.
2  1-3  # **numbers      ....
3  1-3  # *      *betics      ....
7  1-3  # *-      *      * ....
8  1-2  # Line after path indicator record
10 1-2  # *^      * ....
11 1-3  # Line after path indicator record
12 1-3  # *      *+      * ....
13 1-4  # *      *      **numb ....
15 1-4  # *-      *-      *-      * ....

```

Using the **-r** option we can specify a regular expression on which record information cues. Executing the following command:

```
fields -r '[0-9]' input
```

produces the following output:

```

1  1-1  # Line 1 must appear in the file.
4  1-3  # 14   abc   %@ ....
6  1-3  # 3    .    #& ....
14 1-4  # mno  pqr   87 ....

```

Notice that only those records containing numerical data tokens have been listed.

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

extract (4), **regexp** (4), **regexp** (6)