Transforming EconLit downloads to BibTeX archives with `elit2bib`

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The online database EconLit (within WebSpirs) allows to download economic references into a text file. For users of LaTeX, it seems convenient to transform the reference file into a format that BibTeX understands. The script `elit2bib` does this.

We have written `elit2bib` to include some new, and in our view desirable, features. Our script, programmed in Perl 5, makes use of additional information that has become available in EconLit (via WebSpirs) lately. It also evaluates the input differently, and checks for possible problems in the output creation. In particular, `elit2bib` warns the user of detected mistakes or inconsistencies, mostly resulting from non-standard WebSpirs entries. The current version of `elit2bib` works on EconLit output that was generated with WebSpirs after January 2003. Earlier EconLit output can be transformed with `elit2bib-v1` or `elit2bib-v2` (see appendices C and D, p. 31).

This documentation describes the main characteristics of our program, how to obtain an adequate input file from WebSpirs and how then to apply `elit2bib` to create a BibTeX output file. Due to some features in WebSpirs and how it reports references, the output file may need a manual check. We programmed `elit2bib` so that it alerts the user of possible problems. For a quick overview of options and warnings, see the appendix (p. 23). The fastest introduction is probably a look at our three examples in section 5 (p. 17).

Originals are available at `http://econ.ucsd.edu/muendler/`. This document is based on `elit2bib` version 1.2.3 from February 4, 2003.

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1 What `elit2bib` Can Do For You

The Perl script `elit2bib` transforms WebSpirs output files from the EconLit database to reference files that can be read by BibTeX and included in LaTeX. The current version

- oversees its own output and warns users if problems are discovered. In particular, it checks for possible inconsistencies, possible mistakes, or a lack of completeness when WebSpirs entries were reported in a non-standard manner

- uses the indicator item "DT:" in WebSpirs (which takes values such as "Journal-Article", "Collective-Volume-Article") to transform all references to according BibTeX entries in a consistent way

- includes a variety of options to create the most appropriate output for the user's preferred BibTeX styles

- keeps the abstract, source information, and internet links in according BibTeX items for convenience. These entries are not going to be output in the reference section of the LaTeX document, but allow the user to quickly re-access broader information about a reference in the `.bib` file

- includes an optional algorithm to create BibTeX keys

- marks the initials of the most common proper names as capital letters. So, BibTeX styles that turn non-starting letters into lower-case letters will not switch proper name initials to lower-case letters

As of now, `elit2bib` is not available as a stand-alone routine. However, we are planning to make it a small stand-alone command file for PCs in the future (it will probably remain a Perl script file for Unix users). We will do so after another round of feedback from users.

In the following section, we describe how a BibTeX file can be created from WebSpirs/EconLit input, using `elit2bib`. There are three steps. First, adequate input from WebSpirs needs to be downloaded.[1] Section 2 explains how. Second, you can run `elit2bib` to read this input file and to create an output file in BibTeX format. Various options are available. Section 3

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[1] Other online providers of EconLit (such as FirstSearch, for instance) do not output in a format that `elit2bib` can read. To our knowledge, WebSpirs is the most frequently used online provider among economics departments worldwide.

and the according subsections are dedicated to this. Last, and certainly not least, the output should be checked manually. We point out some concerns in section 4. To make you even more familiar with `elit2bib`, we have included some examples in section 5. We have added some "asides" in the text that may be useful at a second glance, but can be skipped at a first reading.

2 Downloading an EconLit File from WebSpirs

On the WebSpirs web page, select EconLit and start your literature search.[2] Once you have completed your search, click the tag "Save As..." to download your results to a local file. WebSpirs will ask you "Which records do you want to save?" Any selection and file size is fine for our script `elit2bib`. A file of 250 entries usually takes less than 2 seconds to process with `elit2bib` (after elit2bib is compiled).

Before you start the download, you *must change the display options*. Click on the tab "Change Display". (A new web page may open in certain Web-Spirs versions.) The important settings for `elit2bib` to work are listed under the (first) section "Record Display options". Please make the following two selections here:

- Show field names as: *Short labels*

- Display Record with: *Complete record*

Do not forget to click the "Confirm Changes" tag before you leave the page. Otherwise the settings will not take effect.

The following sample shows a typical entry in a downloaded reference file from WebSpirs' EconLit.

```
Search History [04-February-2003]
 #1 (McFadden Daniel) in AU (69 records)

TI:   Living Arrangements:  Health and Wealth Effects
AU:   Borsch-Supan,-Axel; McFadden,-Daniel-L; Schnabel,-Reinhold
AF:   Mannheim U, NBER, and Center for Econ Policy Research; U CA, Berkeley [...]
PB:   Wise,-David-A., ed.  National Bureau of Economic Research Project Report
      series.  Advances in the economics of aging.  Chicago and London:  University of
      Chicago Press, 1996; 193-212
IB:   0226903028
DT:   Collective-Volume-Article
PY:   1996
AI:   No
DE:   Health-Production-Nutrition,-Mortality,-Morbidity,-Disability,-and-[...]
GE:   United-States
UD:   199807
AN:   0465544
```

By default in most recent WebSpirs versions, the downloaded text file will have the extension `*.dat`. This is precisely the extension that our script `elit2bib` expects. You may choose any other extension, however, and later supply this extension in the command line of `elit2bib`.

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[2]The WebSpirs URL is `http://webspirs.silverplatter.com/`.

Aside 1: If you are concerned with download time or file size, and would prefer less than the *complete record* in WebSpirs, you may alternatively select the following items only: TI, AU, PB, FTXT, DT, PY, DE, AB, AV, IB. Among them, DT, TI, AU, PB, PY are a 'must', whereas FTXT, DE, AB, AV, IB are optional. Note that `elit2bib` will ignore all reference entries for which DT (type of entry) is not available. So, it is mandatory to include DT. Similarly, a BibTeX entry is going to be incomplete if TI (title), AU (authors), PB (bibliographic citation), or PY (year) are missing in the input file. The items FTXT (URL addresses for fulltext), AV (ordering information for discussion papers), and IB (ISBN/ISDN numbers) are merely for convenience, and you may want to leave them out. You may also not be interested in DE (keywords), or AB (abstract). These are usually large items. Again, such considerations should only be made if you are concerned with download time or file size. Processing time with `elit2bib` should not be more than a few seconds even if you select *complete record* and several hundred entries.

Aside 2: As compared to WebSpirs records before November 2002, the item SO is now called PB, and DS is called DE. The new item DE mixes various keyword systems.

3   Applying `elit2bib`

The program `elit2bib` is written as a Perl script for Perl 5. You can obtain latest information on Perl from *perl.com*. PC users may want to see Active-State for the latest PC release, which merges two earlier lines of Perl ports for Windows 32.[3] Running Perl scripts on your PC may seem difficult to you at first. Don't worry. This documentation file describes all you need to know so that you can run our script file `elit2bib.pl` smoothly. It may even help you understand how to run other Perl scripts. To run `elit2bib`, you first need to choose the settings such as path and file names, and options. Then you invoke `elit2bib` through Perl. This is described in detail in the present section.

`elit2bib` processes reference entries in EconLit, except Book Reviews. It transforms these EconLit entries according to their DT (type of entry) item into corresponding BibTeX entries. This is also shown in table 1. To our knowledge, no other DT entries than the ones listed in table 1 are used by EconLit under WebSpirs. For instance, we have not detected articles that were published in proceedings. However, we might be mistaken. In that case, we would be happy to add any further entry types to our program. Please don't hesitate to e-mail us if you discover WebSpirs entries we did not know of.

3.1   Before you start

Before you start using `elit2bib`, please be aware that we are distributing `elit2bib` freely under the condition that you make *no* changes to the script code without renaming the file. That is, you can alter our script, change and improve it where ever you want, but we require that you rename the file as soon as you alter any part of the code. This is common with freely distributed software. We want to avoid that "copies" of `elit2bib`, which are potentially quite unrelated to the original, start circulating. Accordingly, the '*license agreement*' in the header of our script file reads:

```
# Copyright (C) 2001 all rights reserved.
#
# Copying of this file is authorized only if either
# (1) you make _no_ changes to your copy, or
# (2) if you do make any change, you name the altered file
        differently.
```

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[3]The URL of perl is `http://www.perl.com/`, and the URL of ActivePerl for PCs at ActiveState `http://www.activestate.com/Products/ActivePerl/Download.html`.

Table 1: TRANSLATION FROM ECONLIT TO BIBTEX ENTRIES

EconLit entry (DT)		BibTeX entry
Journal-Article	→	@ARTICLE
Working-Paper	→	@ARTICLE (or @TECHREPORT[a])
Book	→	@BOOK
Collective-Volume-Article	→	@INCOLLECTION
Dissertation	→	@PHDTHESIS[b]
Book-Review		*not included*

[a]If option `-t` is selected. See section 3.4 or appendix A for details.
[b]EconLit does not record Master's Theses to our knowledge.

When you run the script for the first time, you have agreed to these terms.

3.2 Selecting the settings in `elit2bib`

As of now, `elit2bib` is not a stand-alone routine. Among other things, this implies that you need to insert manually your preferred settings in the head of the script code. This is not a big deal. Open the file `elit2bib.pl` in any text editor of your choice (such as *notepad* or *WinEdt* on a Windows PC or *emacs* on a Unix computer). There are two fields in the script file in which you need to make changes before using `elit2bib`. Both fields are marked with separators ("`#---`"). Point the cursor to the first field

```
#------------------------------------------------
# PLEASE ENTER OPTIONS AND FILENAME HERE as $cmd
$cmd = '-e -f -k -v download';
#------------------------------------------------
```

We like to run `elit2bib` with the options `-e -f -k -v`. We will turn to these and other options shortly in section 3.4 below. Here, we suppose that `elit2bib` should run on the input file `download.dat`, which is a standard download file that WebSpirs will produce when accessing its html-based version.[4] We can leave out the file extension `.dat` in the command line since the program assumes `.dat` to be the default extension.

The second field with settings tells `elit2bib` where to look for the input file, and where to save the output file. Point your cursor to

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[4]As a further example, we could run `elit2bib` on the input file `mcfadden.dat`. This file is available as sample file at URL `http://econ.ucsd.edu/muendler/`.

```
#---------------------------------------------------
# CHANGE PATH NAMES for input and output files HERE
open(IN,"<c:/temp/$file.$ext") [...]
open(OUT,">c:/temp/$file.bib") [...]
#---------------------------------------------------
```

a little further below, and provide `elit2bib` with the full pathname of your
input and output directories. You only need to change the parts that read
`<c:/temp/` and `>c:/temp/`. Our default is a temporary directory on a PC.
Unix, Linux and Mac users need to adjust the path names accordingly. We
believe that you need not make changes to this second field very often.

The default settings in both fields will result in the following actions of
`elit2bib`. First, the program will attempt to read the file `download.dat` in
directory `c:/temp/`. If it finds the file, it will translate all EconLit entries to
BibTeX format under options `-e -f -k -v`. Then it will write the output file
to the directory `c:/temp/` and name the file `download.bib`. If the output file
`download.bib` exists already, the program will overwrite the file without warn-
ing. If either the program cannot locate the input file `c:/temp/download.dat`
or if the output path does not exist, `elit2bib` will abort with an according
error message.

Aside: The aforementioned two changes to the script are necessary under the
given version of the program. So, we do not ask you to change the filename of
`elit2bib` when you *only* change the settings. Accordingly, the complete second
item in our license statement reads

```
# (2) if you do make any change, you name the altered file
#     differently.
#     (You may keep the file name if you make changes only to
#     sections that are surrounded by #--- separators.)
```

3.3   Invoking `elit2bib`

Having chosen the according settings, you can now invoke `elit2bib` as a Perl
script file. Let's suppose first, you want to invoke `elit2bib` on a PC with
Windows and that the script file `elit2bib.pl` is in the directory: `c:/perl/`.
Select "Run..." from the Windows start menu and type

```
command.com /k perl "c:/perl/elit2bib.pl"
```

(or paste this line there). Of course, you can put the script file `elit2bib.pl`
in any other directory and adjust the file reference accordingly.

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A DOS window will open. If Perl cannot find the script file `elit2bib.pl` in directory `c:/perl/`, it will respond with the error message "Can't open perl script 'c:/perl/elit2bib.pl': No such file or directory". If our program `elit2bib` cannot find your specified input file (as described in section 3.2), it will respond through Perl with the error message "Can't open input file download.dat. Error at c:/perl/elit2bib.pl line 40." A similar message occurs if the output path does not exist. Otherwise, `elit2bib` should run for some seconds and create a proper BibTeX output file. At first use, Perl compiles the Script code and takes a little longer. Once Perl is done with `elit2bib`, a DOS prompt appears, and you can close the window with "exit" (enter).

To play with `elit2bib`, you can use our sample file `mcfadden.dat`.[5] You only need to save it to the right input directory (`c:/temp/` is the Windows default) and enter the file name `mcfadden` in the header of the Perl script:

```
#-----------------------------------------------
# PLEASE ENTER OPTIONS AND FILENAME HERE as $cmd
$cmd = '-e -f -k -v mcfadden';
#-----------------------------------------------
```

Alternatively, you can run `elit2bib` on the DOS level directly. For this, you can launch the command prompt from the start menu. Once the DOS window has opened, type

```
perl "c:/perl/elit2bib.pl"
```

Alternatively, you can use the DOS command "cd" first to change to the directory where the script file `elit2bib.pl` is located and then invoke the script directly by typing `perl elit2bib.pl`.

On a unix computer, the syntax is similar to the DOS level command. First, change to the directory where you keep your copy of the script file `elit2bib.pl`. Then type

```
perl elit2bib.pl
```

Again, the rest is the same as described above.

When you run `elit2bib` on any other input file than `mcfadden.dat`, warning messages may be displayed in the DOS window to alert you of possible problems during the translation procedure. Section 4 explains these messages, their possible causes, and adequate actions in more detail.

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[5]The file `mcfadden.dat` is part of a sample package `samples.zip`, which you can download from the web site `http://econ.ucsd.edu/muendler/`.

Table 2: OPTIONS IN `elit2bib`

	Function
`-e`	Transforms "et al." string into "{et~al.}" in author=/editor= items
`-f`	Adds a File reference item (set to F) to each BibTeX entry
`-k`	Creates BibTeX Keys from author=/editor= and year= items
`-l`	Leaves BibTeX keys out and inserts dummies, causing BibTeX errors
`-m`	Does *not* transform "Jan" to "January", etc.
`-q`	Changes double quotes to single quotes in title= and booktitle=
`-t`	Translates working paper as @TECHREPORT, and not as @ARTICLE
`-v`	Uses book volume instead of number if both reported in EconLit

3.4 Choosing adequate `elit2bib` options

`elit2bib` allows you to choose among eight different options. They determine the way in which the output file is created. Table 2 provides an overview. These eight options are described in more detail in appendix A, where we also give examples. Here, we only briefly discuss some of their uses.

Option `-e` tells `elit2bib` to transform the string "et al." into the string "{et~al.}" whenever encountered in an author= or editor= field. This partly remedies an incompatibility between EconLit and BibTeX. EconLit generally suppresses all but the first author name if there are four or more authors. Instead, EconLit reports the alphabetically first author's name and adds an "et al.". Standard BibTeX styles cannot handle such entries. The only clean way out is to research the remaining three or more author names and to add them manually to the BibTeX entry. Whenever you use BibTeX styles, however, that do *not* abbreviate first names (such as *aer.bst*, for example), putting "et al." in curly brackets makes these bibliography styles believe that an addition to the name occurs here. So, BibTeX treats the string "{et~al.}" as if it were an addition to the name such as "Jr". This can be a suitable work-around in the cases when EconLit does not report all authors.

Option `-k` makes `elit2bib` create automatic BibTeX keys that can be used in LaTeX for referencing. Say, the two authors of an article are "Ai, Chunrong and McFadden, Daniel". With option `-k` specified, `elit2bib` creates an automatic key "@ARTICLE{AiMcFadd97," for this article (which was published in 1997). You can then reference this article with the command `\cite{AiMcFadd97}` in your LaTeX file. If you do not specify option `-k`, the keys of all articles will simply be their running numbers within the output file. So, if not specifying option `-k`, you will have to replace the running number by

a key of your choice. The supporting BibTeX style *keylist.bst* helps you view the keys and the according entries in LaTeX, a procedure that we describe in appendix B.

Option `-t` translates working papers into a BibTeX entry @TECHREPORT. However, the *default* in `elit2bib` is to translate a working paper into an @ARTICLE entry in BibTeX. The advantage of an @ARTICLE entry is that non-economic BibTeX styles such as *agsm.bst* or *amsplain.bst* will treat the entry in a way that looks common to an economist. We expect most `elit2bib` users to be economists, possibly using non-economic BibTeX styles. Non-economic BibTeX styles mostly make @TECHREPORT entries appear as "Technical Reports" in the final LaTeX output. NBER working paper no. 4666, for example, would be quoted as "Technical Report 4666, NBER" by most non-economic bibliography styles. If option `-t` is not specified, `elit2bib` will make this NBER working paper an @ARTICLE with accordingly rearranged items so that it would indeed appear as "NBER Working Paper 4666" in the references section of the final LaTeX output. It will be quoted in this generic way both in non-economic and economic bibliography styles. That's also why we made it the default. On the other hand, if you are sure that you will exclusively or mainly use economic bibliography styles, you can specify option `-t`. Economic BibTeX styles such as *aer.bst* or *econometrica.bst* will make the final LaTeX reference entry say "Discussion Paper 4666, NBER," or the like, as economists are used to see it.

4 Checking the Output file

There are several incompatibilities between the way EconLit under WebSpirs records references, and how BibTeX is used to catalog references. In addition, entries in EconLit, especially its "Collective-Volume-Articles", come in a variety of formats that are sometimes hard to disentangle. For these reasons, output from `elit2bib` may be incomplete, or even mistaken in some cases. We have designed `elit2bib` so that it oversees its own activity, and warns the user if it detects possible inconsistencies. Yet, even when no warnings occur, **we highly recommend that you check the output file**, and pay special attention to all "Collective-Volume-Articles", or @INCOLLECTION items.

4.1 Four remarks on how `elit2bib` avoids translation mistakes

We have designed `elit2bib` to take care of potential translation mistakes from EconLit to BibTeX. First, we perform *word transformations to avoid errors* in BibTeX. We change names of the most commonly appearing countries and states of the US, when abbreviated, into forms that do not create a confusion with other types of items in a field. Similarly, we make quotation marks, ampersants and the like LaTeX compatible, and try to identify special punctuation marks when they would affect the translation. Abbreviations such as "St." or "Calif.", for instance, are clear for a standard reader: "St." is part of a name, "Calif." is a location that specifies the address of a publisher. The punctuation, however, could be confused with the end of a string within a field, especially for a "Collective-Volume-Article" (@INCOLLECTION). So, "St." is treated in a special way, and "Calif." is replaced by "{CA}" in `elit2bib`. (The curly brackets around state abbreviations avoid that BibTeX changes upper-case to lower-case letters.) These are only some among many examples.

Second, we try to take care of *incompatibilities* between the way EconLit reports references and the form of BibTeX input. For instance, a cause of errors in BibTeX is when both a number and a volume are reported for a "Collective-Volume-Article" or a "Book" entry in EconLit. This typically occurs when a book is published in a series, and receives a number, and when the book is also split into more than one volume. The corresponding BibTeX categories @INCOLLECTION and @BOOK must not contain both a volume and a number. We have chosen to resolve this conflict by retaining the number of the book within the series but by removing the volume. Option `-v` allows you to retain the volume instead of the series number. A similar problem arises with a

"Journal-Article" (@ARTICLE) in Brookings Papers. Since Brookings Papers are not divided into volumes but receive a number, EconLit reports a number 2 in a given year with "0(2)", for example. After removing the zero volume, BibTeX would produce an error message that a number without a volume exists. We have resolved this problem by artificially replacing the volume with the year of publication.

Third, EconLit uses *flexible formats* for several types of entries, and sometimes contains slight deviations from standards that are not problematic for a reader but can cause difficulties in an `elit2bib` translation. Some "Collective-Volume-Article" entries, for instance, lack the addition "eds." to the editor name in EconLit, but the reference does still allow to clearly distinguish authors from editors. Sometimes, the "eds." remark is repeated. Or, as opposed to a typical "Working-Paper" entry in EconLit, World Bank and IMF discussion papers often contain colons at unexpected positions. These and similar problems have been resolved. Please report any other apparent translation issue to the authors if you detect one.

Fourth, EconLit reports all author and editor names separated with hyphens and cannot distinguish spaces and hyphens. This can create problems in BibTeX. BibTeX styles such as *aer.bst*, for instance, treat lower-case words that appear after a first name as prefixes or suffixes to the name (such as "de", "van", "von"). The BibTeX style *aer.bst* would therefore quote the name "Lin, Chung cheng" in the file `shapiro.dat` as "cheng Lin, Chung" in the LaTeX reference section. This is undesirable. Obviously, the first and middle name "Chung cheng" was originally one hyphenated first name. So, `elit2bib` takes the name "Lin, Chung cheng" and transforms it to "Lin, Chung-cheng" in `shapiro.bib`. Then a hyphen will appear later in the LaTeX reference section. `elit2bib`'s rule is to insert a hyphen between the first and middle name if the middle name starts with a lower-case letter.[6]

4.2 Three remarks on unavoidable problems for `elit2bib`

Some features of EconLit create unavoidable problems. First, EconLit suppresses all but the first author (editor) name if there are four or more authors (editors). Instead, EconLit reports the alphabetically first author's name and adds an "et al.". Standard BibTeX styles cannot handle such entries. The only clean way out is to research the remaining three or more author names

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[6]EconLit never reports special characters such as "ã" or "ä." If required, those need to be added manually.

and to add them manually to the BibTeX entry. Sometimes, EconLit reports the coauthors at the end of the abstract (the AB item). Then, the coauthors can be copied manually into the author= (editor=) field in BibTeX. If that is not the case, the option `-e` can serve as a partial work-around. The option `-e` tells `elit2bib` to transform the string "et al." into the string "{et~al.}" and to add it accordingly to the author= (editor=) field (see section 3.4 above).

Some BibTeX styles such as *agsm.bst*, for instance, transform upper-case words in titles and book titles into lower-case words. This is unfortunate for given names that may appear in a title. The only way to avoid this transformation is to use curly brackets and embrace the capital letters that must not be transformed. The program `elit2bib` does this automatically for frequently used geographic names (e.g. "Africa" is automatically transformed to "Africa", "Pacific" to "Pacific", "U.K." to "UK"). However, given names of authors that appear in titles will evade `elit2bib`'s attention. These names need to be detected and treated manually (see appendix A.5 for an example).

Aside: Since January 2003, WebSpirs shows the names of a collective volume's editors again for collective-volume articles. During a period of incompatibility (November 2002 to January 2003) BibTeX keys for Collective-Volume-Articles were based on the first words of the book title. Since January 2003, they are again based on the editors' names. (However, BibTeX keys created under the option `-k` between November 2002 and January 2003 remain inconsistent with entries in current `.bib` files.)

4.3   Typical warnings and their likely causes

We have designed `elit2bib` to display warning messages both in the DOS (or Unix/Linux) window and in the head of the output file. The messages are added as remarks to the `.bib` file so that they are ignored by BibTeX. These warnings are issued when the translation through `elit2bib` results in certain inconsistencies or empty entries. `elit2bib` is designed to translate every identifiable EconLit entry, no matter how severe the problem may be, but `elit2bib` reports each problematic entry that it encountered while running.

In rare circumstances, non-standard references in EconLit may result in an empty journal= or month= field for a "Journal-Article" (@ARTICLE), for instance. Or, as another rare example, the booktitle= field in a "Collective-Volume-Article" (@INCOLLECTION) may have remained empty or it may contain elements that do not belong to the book title. Entries with these fields empty would cause error messages in BibTeX. We made sure that `elit2bib` warns you beforehand. The following list gives you an (exhaustive) overview

of warning messages that you may encounter during an `elit2bib` translation. The according error messages in the DOS (or Unix/Linux) window will read:

> *There were @ARTICLE entries with problems. See head of output file for details.*

In the head of the BibTeX output file, you will then find the warning

> *%ARTICLE entries may be incomplete! Please check all entries on the list. (This problem can be due to non-standard entries in WebSpirs.)*

The message will be followed by a list of all BibTeX entries for which a problem has been detected.

`elit2bib` uses the "DT:" field in EconLit to identify the type of an entry (see table 1, p. 7). If the input file does not contain any entry with a "DT:" field specified, `elit2bib` will display the error

> *The WebSpirs .dat file did not contain any DT: entry.*

The output file will be empty. This problem occurs if you did not change the *display options* before downloading your input file from the WebSpirs web site—see section 2. Before you start the download, you *must change the display options* and select

- Display Record with: *Complete record.*

Should `elit2bib`, or Perl, display any other error message, then this message is most likely due to a change in the code that you made. In this case, `elit2bib` will not perform any translation until you remove the error from the code.[7] If the input file or the output directory that you specified do not exist, error messages as discussed in section 3.2 occur, and `elit2bib` is aborted. In all other cases, `elit2bib` does not abort but tries to perform as many translations as possible.

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[7]Please note that you are holding an illegal copy of the file `elit2bib.pl` if the code has been changed, unless the file was renamed.

4.4 Possible problems that elapse `elit2bib`'s attention

There are cases in which `elit2bib` may produce problematic BibTeX output that cannot be logically checked without understanding the meaning of phrases. EconLit's "Collective-Volume-Article" entries, for instance, do not always allow to distinguish between the series of the book, in which the article is published, and a subtitle of the article. We therefore urge you to check all @INCOLLECTION entries in the BibTeX output by hand. Similarly, when a book is published in a series, EconLit may have erroneously interchanged number and volume. There are many different ways in which EconLit treats series of books. Again, this suggests that you check @INCOLLECTION entries in the BibTeX output manually. Finally, author and editor names always deserve special attention. Names may contain prefixes and suffixes such as "de", "van", "von", "Jr.", and the like. Depending on both the specifics of the name and your taste, you may want or need to adjust these names manually, using curly brackets around the appropriate parts of the name so that BibTeX will treat them as desired.

5 Sample Input and Output with `elit2bib`

This section provides some examples of input and output. We are using the sample files `mcfadden.dat` and `shapiro.dat`. They reflect possible searches on WebSpirs' EconLit database. Please remember that it is necessary to make any downloads of your input files with the WebSpirs display options

- Show field names as: *Short labels*

- Display Record with: *Complete record*

In the following examples, we apply three types of BibTeX style files: *aer.bst*, *agsm.bst*, and *econometrica.bst*. They are available for free download at the according *CTAN* servers, or at the authors' web sites for your convenience. We discuss three examples that are intended to show you the main issues when translating EconLit references to BibTeX.

5.1 An article in a collection

Consider the following sample entry of an article in a collection.

```
TI:  Living Arrangements:  Health and Wealth Effects
AU:  Borsch-Supan,-Axel; McFadden,-Daniel-L; Schnabel,-Reinhold
AF:  Mannheim U, NBER, and Center for Econ Policy Research; U CA, Berkeley [...]
PB:  Wise,-David-A., ed.  National Bureau of Economic Research Project Report series.
     Advances in the economics of aging.  Chicago and London:  University of Chicago
     Press, 1996; 193-212
IB:  0226903028
DT:  Collective-Volume-Article
PY:  1996
AI:  No
DE:  Health-Production-Nutrition,-Mortality,-Morbidity,-Disability,-and-[...]
GE:  United-States
UD:  199807
AN:  0465544
```

As you can see from this example, `elit2bib` will have to perform most action on the field "PB:". Here, non-standard entries in EconLit cause the most errors. Under options `-f` `-k`, the entire EconLit entry is transformed into the according BibTeX entry

```
@INCOLLECTION{Wise96:2,
author =      {Borsch Supan, Axel and McFadden, Daniel L. and Schnabel, Reinhold},
title =       {Living Arrangements:  Health and Wealth Effects},
pages =       {193-212},
booktitle =   {Advances in the economics of aging},
publisher =   {University of Chicago Press},
year =        {1996},
editor =      {Wise, David A.},
volume =      {},
number =      {},
series =      {{NBER} Project Report series},
type =        {},
chapter =     {},
address =     {Chicago and London},
edition =     {},
month =       {},
note =        {},
isbn =        {0226903028},
abstract =    {},
keywords =    {Health Production Nutrition, Mortality, Morbidity, Disability, [...]},
source =      {},
file =        F
}
```

Option `-k` creates the BibTeX key "Wise96:2", where "Wise96" corresponds to the volume editor's last name and the year of publication. The ":2" indicates that this is the second article (chapter) that EconLit picked from the collective volume for the download file `mcfadden.dat`. The generic (Harvard-type) BibTeX style *agsm.bst* will display this BibTeX entry as

> Borsch Supan, A., McFadden, D. L. & Schnabel, R. (1996), Living arrangements: Health and wealth effects, *in* D. A. Wise, ed., 'Advances in the economics of aging', NBER Project Report series, University of Chicago Press, Chicago and London, pp. 193–212.

Note that `elit2bib` always reduces "National Bureau of Economic Research" to "NBER" for consistency across entries. Moreover, "NBER" is properly displayed and not reduced to lower-case letters since `elit2bib` has automatically surrounded the term by curly brackets. Please be aware that book titles are never provided with upper-case letters in EconLit so that they may not be in the format you want them.

5.2   A journal article

Consider the following sample entry of an article in a professional journal.

```
TI:   A Characterization of Community Excess Demand Functions
AU:   McFadden,-Daniel-L et-al
SO:   Journal-of-Economic-Theory.  Dec.  1974; 9(4):  361-74
IS:   0022-0531
DT:   Journal-Article
PY:   1974
AI:   No
DE:   Microeconomic-Theory-Theory-of-the-Household-(Consumer-Demand) (0222)
UD:   199006
AN:   0079365
```

In this example, more than three authors have written the article. EconLit suppresses all but the first author. Under options `-e -f -k`, the entire EconLit entry is transformed into the according BibTeX entry

```
@ARTICLE{McFadd74-b,
author =     {McFadden, Daniel L. {et al.}},
title =      {A Characterization of Community Excess Demand Functions},
journal =    {Journal of Economic Theory},
year =       {1974},
volume =     {9},
number =     {4},
pages =      {361-74},
month =      {December},
note =       {},
abstract =   {},
keywords =   {Microeconomic Theory Theory of the Household (Consumer Demand)},
source =     {},
file =       F
}
```

Option `-k` creates the BibTeX key "McFadd74-b", where the "-b" is added because there is more than one entry with "McFadd74" in the EconLit file `mcfadden.dat`. Since option `-e` was specified, the "et al." terms are surrounded by curly brackets. So, the American Economic Review BibTeX style *aer.bst* creates the LaTeX entry

> **McFadden, Daniel L. et al.**, "A Characterization of Community Excess Demand Functions," *Journal of Economic Theory*, December 1974, *9* (4), 361–74.

However, the Econometrica BibTeX style *econometrica.bst* will display this BibTeX entry as

> McFadden, D. L. e. (1974b): "A Characterization of Community Excess Demand Functions," *Journal of Economic Theory*, 9(4), 361–74.

In general, the "et al." entry will lead to an incorrect reference in any BibTeX style that abbreviates first names. If the option `-e` had not been specified, the author quote under the *econometrica.bst* style would have become

"MᴄFᴀᴅᴅᴇɴ, D. L. ᴇ. ᴀ."—not much better. So, the only clean way to create correct BibTeX entries when EconLit cuts the author list is to research the names of the remaining authors, and to add them manually.

5.3   A working paper

Consider the following sample entry of a working paper.

```
TI:   Economic Rationales for the Scope of Privatization
AU:   Shapiro,-Carl; Willig,-Robert-D
AF:   Princeton U; Princeton U
PB:   John M. Olin Program for the Study of Economic Organization
      and Public Policy:  41 January 1990; 46
DT:   Working-Paper
PY:   1990
AI:   Yes
AB:   We develop [...]
DE:   Boundaries-of-Public-and-Private-Enterprise; [...]
AV:   Copies available from:   [...]
PR:   no charge
CR:   This record is part of [...]
UD:   199403
AN:   0314046
```

Under options `-f -k`, the according BibTeX entry becomes

```
@ARTICLE{ShapirWillig90-a,
author =      {Shapiro, Carl and Willig, Robert D.},
title =       {Economic Rationales for the Scope of Privatization},
journal =     {John M. Olin Program for the Study of Economic Organization and Public
              Policy Working Paper},
note =        {},
year =        {1990},
volume =      {41},
month =       {January},
abstract =    {We develop an information-theoretic model [...]},
keywords =    {Boundaries of Public and Private Enterprise [...]},
source =      {Department of Economics, Woodrow Wilson School of Public & [...]}
file =        F
}
```

Here, the source is the department where the working paper can be ordered. For articles or working papers that are available online, `elit2bib` will write the web address into this field.

Let's focus on the type of entry, however. As opposed to the BibTeX standard, the default in `elit2bib` is *not* to create a @ᴛᴇᴄʜʀᴇᴘᴏʀᴛ entry but an @ᴀʀᴛɪᴄʟᴇ. The reason is that generic (Harvard-type) BibTeX styles such as *agsm.bst* will now produce an entry

Shapiro, C. & Willig, R. D. (1990*a*), 'Economic rationales for the scope
of privatization', *John M. Olin Program for the Study of Economic*

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Organization and Public Policy Working Paper **41**.

Note that the addition "Working Paper" has been made by `elit2bib` automatically, even though the according "PB:" field in the input file did not contain it.

On the other hand, if you had specified the option `-t` when creating the output file, `elit2bib` would have recorded a @TECHREPORT entry in the output file. Then, a generic BibTeX style such as *agsm.bst* will produce the LaTeX reference

> Shapiro, C. & Willig, R. D. (1990*a*), Economic rationales for the scope of privatization, Technical Report 41, John M. Olin Program for the Study of Economic Organization and Public Policy.

and there is no way to avoid the "Technical Report" term. Since we wrote `elit2bib` mostly for users who are economists and thought that they might still want to use generic BibTeX style files from time to time, we made an accordingly adjusted @ARTICLE entry the default.

However, there may still be some reason why even an economist may prefer to use the `-t` option. Suppose the economist is sure that she would never use a generic BibTeX style file but only styles such as Econometrica (*econometrica.bst*). When the option `-t` is *not* specified, the `elit2bib` output will become

> SHAPIRO, C., AND R. D. WILLIG (1990a): "Economic Rationales for the Scope of Privatization," *John M. Olin Program for the Study of Economic Organization and Public Policy Working Paper*, 41.

in LaTeX. Otherwise, if the option `-t` *is* specified, the reference will read

> SHAPIRO, C., AND R. D. WILLIG (1990a): "Economic Rationales for the Scope of Privatization," Discussion Paper 41, John M. Olin Program for the Study of Economic Organization and Public Policy.

Again, the term "Discussion Paper" is the standard and cannot be altered. If you prefer the second result and can be sure to never use generic style files, you may indeed want to specify the `-t` option.

For a comparison, when the `-t` option is *not* specified the American Economic Review style (*aer.bst*) will produce

> **Shapiro, Carl and Robert D. Willig**, "Economic Rationales for the Scope of Privatization," *John M. Olin Program for the Study of Economic Organization and Public Policy Working Paper*, January 1990, *41*.

and, when the `-t` option *is* specified, the result in the L^ATEX references will be

> **Shapiro, Carl and Robert D. Willig**, "Economic Rationales for the Scope of Privatization," Technical Report 41, John M. Olin Program for the Study of Economic Organization and Public Policy January 1990.

So, be advised that even some economic BibTeX style files may not treat @TECHREPORT entries the way you want. This is another reason why we made it the default that working papers are turned into (accordingly adjusted) @ARTICLE entries in BibTeX.

Appendix

A The Options

The following options are supported in the current version of `elit2bib`.

	Function
`-e`	Transforms "et al." string into "{et~al.}"
`-f`	Adds a File reference item (set to F) to BibTeX entries
`-k`	Creates BibTeX Keys from author=/editor= and year= items
`-l`	Leaves BibTeX keys out and inserts dummies, causing errors
`-m`	Does *not* transform "Jan" to "January", etc.
`-q`	Changes double quotes to single quotes
`-t`	Translates working paper as @TECHREPORT, not as @ARTICLE
`-v`	Uses book volume instead of number if both reported in EconLit

The following subsections discuss these 8 options in more detail.

A.1 Option -e

Option `-e` is also described in section 3.4. This option tells `elit2bib` to transform the string "et al." into the string "{et~al.}" whenever encountered in an author= or editor= field. This partly remedies an incompatibility between EconLit and BibTeX. EconLit generally suppresses all but the first author name if there are four or more authors. Instead, EconLit reports the alphabetically first author's name and adds an "et al.". Standard BibTeX styles cannot handle such entries. The only clean way out is to research the remaining three or more author names and to add them manually to the BibTeX entry. Whenever you use BibTeX styles, however, that do *not* abbreviate first names (such as *aer.bst*, for example), putting "et al." in curly brackets makes these bibliography styles believe that an addition to the name occurs here. So, BibTeX treats the string "{et~al.}" as if it were an addition to the name such as "Jr". This can be a suitable work-around in the cases when EconLit does not report all authors.

A.2   Option -f

Option -f adds the file reference field file= to every BibTeX entry. If you wish to use the file= field in your BibTeX (.bib) libraries, elit2bib can provide the according field. In order to make use of it, however, you need to manually replace the default entry "F" ('false' for file not available) with a proper file reference.

A.3   Options -k and -l

Option -k is also described in section 3.4. This option makes elit2bib create automatic BibTeX keys that can then be used directly in the LaTeX file for referencing. Say the two authors of an article are "Ai, Chunrong and McFadden, Daniel", then option -k has elit2bib create an automatic key "@ARTICLE{AiMcFadd97," for this article (which was published in 1997). You can reference this article with the command \cite{AiMcFadd97} in your LaTeX file. If you do not specify option -k, the keys of all articles will simply be their running numbers within the output file. So, if not specifying option -k, you will have to replace the running number by a key of your choice. The supporting BibTeX style *keylist.bst* helps you view the keys and the according entries in LaTeX, a procedure that we describe in appendix B.

By default, keys are created from the authors' or editors' names and the year of publication. There are two examples for BibTeX keys in the text. On pages 19 and 18 we show how the option -k works. In the first example, option -k creates the BibTeX key "Wise96:2" from the editor's name Wise and the year of publication of the collective volume, 1996. The ":2" is added because this is the second article (chapter) that EconLit picked from the same collective volume (within the file mcfadden.dat). In the second example, option -k creates the BibTeX key "McFadd74-b" from the author's name McFadden and the year of publication 1974. The "-b" is added because there is more than one entry with "McFadd74" in the EconLit file (mcfadden.dat).

If you are sure that you want to create all BibTeX entries manually, and you also want to be sure not to forget a single key, you can specify option -l. Whenever you then run BibTeX on the output file, you receive an error message until you remove every single error dummy (an open rectangle in ASCII) from the output file.

Aside: Due to changed reporting formats in WebSpirs, there were two types of BibTeX keys under option -k in the previous version elit2bib-v2.pl (introduced in November 2002 and in effect until January 2003). During that period, WebSpirs no

longer showed the names of a collective volume's editor(s). So, the BibTeX keys for Collective-Volume-Articles (@INCOLLECTION) could not be based on editor names. Instead, the keys were based on the first words of the book title. This makes BibTeX keys under the option -k inconsistent with entries in .bib files that were created with the prior elit2bib version (now available as elit2bib-v1.pl) and the current version elit2bib.pl.

A.4   Option -m

Option -m transforms abbreviations of the months (or seasons) into their full-length form. EconLit reports some but not all months as abbreviations. To make reporting uniform in BibTeX, you can use the option -m to conduct the following transformations: "Jan." to "January", "Feb." to "February", and so forth, as well as "Sept." (or "Sep.") to "September", "Win." to "Winter" and "Sum." to "Summer."

A.5   Option -q

Option -q changes double quotes in titles (title= field) or book titles (booktitle= field) to single quotes. This can be useful if you anticipate to use certain BibTeX styles for sure and want to avoid colliding double quotes.

Consider the following sample entry of a journal article.

```
TI:     Discussion of Morey and Waldman's "Measurement Error in Recreation Demand
        Models":  Comment
AU:     Train,-Kenneth-E; McFadden,-Daniel; Johnson,-Reed
AF:     U CA, Berkeley; U CA, Berkeley; Triangle Econ Research, Durham, NC
SO:     Journal-of-Environmental-Economics-and-Management.  July 2000; 40(1):  76-81
IS:     0095-0696
DT:     Journal-Article
PY:     2000
AI:     Yes
AB:     Morey and Waldman have proposed a method for handling measurement error […]
DE:     Recreational-Aspects-of-Natural-Resources; Contingent-Valuation-Methods […]
AV:     http://www.academicpress.com/jeem
XURL:   URL
UD:     200010
AN:     0534355
FTXT:   ScienceDirect (tm) http://www.sciencedirect.com/science?_[…]
```

If option -q is specified, the according BibTeX entry becomes

```
@ARTICLE{TrainMcFadJohns00,
author =     {Train, Kenneth E. and McFadden, Daniel and Johnson, Reed},
title =      {Discussion of Morey and Waldman's 'Measurement Error in Recreation Demand
             Models':  Comment},
journal =    {Journal of Environmental Economics and Management},
year =       {2000},
volume =     {40},
number =     {1},
pages =      {76-81},
month =      {July},
note =       {},
abstract =   {Morey and Waldman have proposed a method for handling measurement [...]},
keywords =   {Recreational Aspects of Natural Resources and Contingent [...]},
source =     {http://www.academicpress.com/jeem},
file =       F
}
```

Without option `-q`, the entry would become

```
@ARTICLE{TrainMcFadJohns00,
[...]
title =   {Discussion of Morey and Waldman's ''Measurement Error in Recreation Demand
          Models'':  Comment},
[...]
}
```

Depending on the BibTeX style you anticipate to use, one BibTeX entry may look better than the other. Under option `-q`, the BibTeX style *agsm.bst* will produce a reference

> Train, K. E., McFadden, D. & Johnson, R. (2000), 'Discussion of morey and waldman's 'measurement error in recreation demand models': Comment', *Journal of Environmental Economics and Management* **40**(1), 76–81.

whereas, without option `-q`, the reference

> Train, K. E., McFadden, D. & Johnson, R. (2000), 'Discussion of morey and waldman's "measurement error in recreation demand models": Comment', *Journal of Environmental Economics and Management* **40**(1), 76–81.

would result.

Aside: We chose to document this sample entry in a little more detail because it also highlights the problematic treatment of names. The BibTeX style *agsm.bst*, and several other styles (but not *aer.bst* and *econometrica.bst*) automatically transform upper-case words in the titles into lower-case words. You can only avoid this transformation if you use curly brackets and embrace the capital letters that should not be transformed. In the example above, a corrected BibTeX entry

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```
@ARTICLE{TrainMcFadJohns00,
[...]
title =   {Discussion of {M}orey and {W}aldman's ''{M}easurement Error in Recreation
          Demand Models'':  Comment},
[...]
}
```

would do the job and yield

> Train, K. E., McFadden, D. & Johnson, R. (2000), 'Discussion of Morey
> and Waldman's 'Measurement error in recreation demand models':
> Comment', *Journal of Environmental Economics and Management*
> **40**(1), 76–81.

A.6   Option -t

Option -t is also described in section 3.4. This option translates working papers
into a BibTeX entry @TECHREPORT. The *default* in elit2bib is to translate a
working paper into an @ARTICLE entry in BibTeX.

The advantage of an @ARTICLE entry is that non-economic BibTeX styles such
as *agsm.bst* or *amsplain.bst* will treat the entry in a way that looks common to an
economist. We expect most elit2bib users to be economists, possibly using non-
economic BibTeX styles. Non-economic BibTeX styles mostly make @TECHREPORT
entries appear as "Technical Reports" in the final LaTeX output. NBER working
paper no. 4666, for example, would be quoted as "Technical Report 4666, NBER" by
most non-economic bibliography styles. If option -t is not specified, elit2bib will
make this NBER working paper an @ARTICLE with accordingly rearranged items
so that it would indeed appear as "NBER Working Paper 4666" in the references
section of the final LaTeX output. It will be quoted in this generic way both in
non-economic and economic bibliography styles. That's also why we made it the
default. On the other hand, if you are sure that you will exclusively or mainly use
economic bibliography styles, you can specify option -t. Economic BibTeX styles
such as *aer.bst* or *econometrica.bst* will make the final LaTeX reference entry say
"Discussion Paper 4666, NBER," or the like, as economists are used to see it.

In section 5.3, we discuss the treatment of a sample working paper and repeat
this discussion here. While it is the BibTeX standard to make a @TECHREPORT
out of a working paper, the default in elit2bib is *not* to create a @TECHREPORT
entry but an @ARTICLE. The reason is that then, by default, generic (Harvard-type)
BibTeX styles such as *agsm.bst* will produce an entry

> Shapiro, C. & Willig, R. D. (1990*a*), 'Economic rationales for the scope
> of privatization', *John M. Olin Program for the Study of Economic
> Organization and Public Policy Working Paper* **41**.

On the other hand, if you had specified the option `-t` when creating the output file, `elit2bib` would have recorded a @TECHREPORT entry in the output file. Then, a generic BibTeX style such as *agsm.bst* produces the LaTeX reference

> Shapiro, C. & Willig, R. D. (1990*a*), Economic rationales for the scope of privatization, Technical Report 41, John M. Olin Program for the Study of Economic Organization and Public Policy.

and there is no way to avoid the "Technical Report" term. Since we wrote `elit2bib` mostly for users who are economists and thought that they might still want to use generic BibTeX style files from time to time, we made an accordingly adjusted @ARTICLE entry the default.

However, there may be reasons why even an economist may prefer to use the `-t` option. Suppose the economist is sure that she would never use a generic BibTeX style file but only styles such as Econometrica (*econometrica.bst*). When the option `-t` is *not* specified, the `elit2bib` output will become

> SHAPIRO, C., AND R. D. WILLIG (1990a): "Economic Rationales for the Scope of Privatization," *John M. Olin Program for the Study of Economic Organization and Public Policy Working Paper*, 41.

in LaTeX. Otherwise, if the option `-t` *is* specified, the reference will read

> SHAPIRO, C., AND R. D. WILLIG (1990a): "Economic Rationales for the Scope of Privatization," Discussion Paper 41, John M. Olin Program for the Study of Economic Organization and Public Policy.

Again, the term "Discussion Paper" is the standard and cannot be altered. If you prefer the second result and can be sure to never use generic style files, you may indeed want to specify the `-t` option.

As we show in section 5.3, the BibTeX style *aer.bst* results in atypical references for @TECHREPORT entries. Not all economic BibTeX style files treat @TECHREPORT entries properly. This is another reason why we made it the default that working papers are turned into (accordingly adjusted) @ARTICLE entries in BibTeX.

A.7   Option -v

Option `-v` makes `elit2bib` use the book volume instead of number if both a volume and a number are reported in WebSpirs/EconLit. WebSpirs/EconLit is not entirely consistent in its use of "No." and "Vol." references. BibTeX, on the other hand, does not allow to quote both a number and a volume for a given entry. This can pose a problem.

Consider the following sample entry of a book.

```
TI:   Handbook of econometrics.  Volume 4
AU:   Engle,-Robert-F; McFadden,-Daniel-L,-eds
PB:   Handbooks in Economics, vol.  2.  Amsterdam; London and New York:  Elsevier,
      North-Holland, 1994; xxvi, 2111-3155
IB:   0444887660
DT:   Book
PY:   1994
AI:   Yes
AB:   Volume 4 of a four-volume set designed to provide up-to-date surveys [...]
DE:   Mathematical-and-Quantitative-Methods-General (C000); Teaching-of-[...]
UD:   199503
AN:   0347573
```

There appear two references to volumes. One is a book number (volume 4) and most suitably assigned to the number= field in BibTeX. The other reference refers to volume within a handbook series (volume 2) and is most suitably assigned to the volume= field. That is what `elit2bib` does in principle. However, BibTeX does not support simultaneous entries in the number= and the volume= fields. So, a choice needs to be made as to which of the two entries to keep. Different BibTeX styles respond differently to the two possible alternatives. `elit2bib` allows for a choice with the `-v` option.

There are two ways to translate this sample entry into a BibTeX reference. By default and without specifying the option `-v`, the entry is translated as

```
@BOOK{EngleMcFadd94,
editor =     {Engle, Robert F. and McFadden, Daniel L.},
title =      {Handbook of econometrics},
publisher =  {Elsevier, {N}orth-{H}olland},
year =       {1994},
volume =     {},
number =     {4},
series =     {Handbooks in Economics},
address =    {Amsterdam, London and New York},
edition =    {},
month =      {},
note =       {},
isbn =       {0444887660},
abstract =   {Volume 4 of a four-volume set designed to provide up-to-date [...]},
keywords =   {Mathematical and Quantitative Methods General (C000) and Teaching [...]},
source =     {},
file =       F
}
```

So, the number of the book within a volume is considered most important. On the grounds of this entry, the BibTeX style *agsm.bst* creates the reference

> Engle, R. F. & McFadden, D. L., eds (1994), *Handbook of econometrics*, number 4 *in* 'Handbooks in Economics', Elsevier, North-Holland, Amsterdam, London and New York.

while BibTeX style *aer.bst* yields

> **Engle, Robert F. and Daniel L. McFadden, eds**, *Handbook of econometrics* number 4. In 'Handbooks in Economics.', Amsterdam, London and New York: Elsevier, North-Holland, 1994.

With the option `-v` specified, on the other hand, the entry becomes

```
@BOOK{EngleMcFadd94,
[...]
volume =   {2},
number =   {},
[...]
file =     F
}
```

So, now the volume within the broader series prevails over the book number. The BibTeX style *agsm.bst* creates the reference

> Engle, R. F. & McFadden, D. L., eds (1994), *Handbook of econometrics*, Vol. 2 of *Handbooks in Economics*, Elsevier, North-Holland, Amsterdam, London and New York.

while BibTeX style *aer.bst* yields

> **Engle, Robert F. and Daniel L. McFadden, eds**, *Handbook of econometrics*, Vol. 2 of *Handbooks in Economics*, Amsterdam, London and New York: Elsevier, North-Holland, 1994.

It is up to the user to choose among these alternatives.

B   Checking Output with the BibTeX style *keylist.bst*

The BibTeX style *keylist.bst* is an auxiliary style file. It reports the BibTeX keys along with full references so that the user can easily locate references for his quotes.

Suppose, `elit2bib` created the file `mcfadden.bib` from the EconLit sample file `mcfadden.dat`.[8] Now one might want to see an alphabetical list of all BibTeX keys that were assigned through `elit2bib`'s `-k` option. The following small LaTeX document, based on the BibTeX style *keylist.bst*, creates an alphabetical list of the BibTeX keys.

```
\documentclass[12pt]{article}
\usepackage{harvard}
```

---

[8] The sample file `mcfadden.dat` is available from `http://econ.ucsd.edu/~muendler/`.

```
\begin{document}
\title{{\tt elit2bib}:
    bib-file processing with {\it keylist.bst}}
\date{today}%
\maketitle
\{\small
\bibliographystyle{keylist}
\bibliography{mcfadden}
\nocite{*}
}%
\end{document}
```

The first EconLit sample entry considered in section 5.1 was

```
TI:   Living Arrangements:  Health and Wealth Effects
AU:   Borsch-Supan,-Axel; McFadden,-Daniel-L; Schnabel,-Reinhold
AF:   Mannheim U, NBER, and Center for Econ Policy Research; U CA, Berkeley [...]
PB:   National Bureau of Economic Research Project Report series.  Advances in the
      economics of aging.  Chicago and London:  University of Chicago Press, 1996;
      193-212
IB:   0226903028
DT:   Collective-Volume-Article
PY:   1996
AI:   No
DE:   Economics-of-Aging (9180); Housing-Economics- [...]
GE:   United-States
UD:   199807
AN:   0465544
```

With the BibTeX style *keylist.bst*, the according BibTeX entry is displayed as

[Wise96:2]   A. Borsch Supan, D. L. McFadden, and R. Schnabel. Living arrangements: Health and wealth effects. In D. A. Wise, editor, *Advances in the economics of aging*, NBER Project Report series, pages 193–212. University of Chicago Press, Chicago and London, 1996.

C Transforming EconLit output generated before November 2002

In November 2002, WebSpirs applied several changes to the way EconLit search results are reported. EconLit search results older than November 2002 can be transformed with the previous version `elit2bib-v1` (version 1.0.1 from April 23, 2001). This version continues to be available as a Perl 5 script and can be downloaded from the URL `http://econ.ucsd.edu/muendler/`. It is now called `elit2bib-v1.pl`.

D   Transforming EconLit output generated between November 2002 and January 2003

In January 2003, WebSpirs applied further changes to the way EconLit search results are reported, and some changes back to the previous version. EconLit search results between November 2002 and January 2003 can be transformed with the previous version `elit2bib-v2` (version 1.1.4 from November 26, 2002). This version continues to be available as a Perl 5 script and can be downloaded from the URL `http://econ.ucsd.edu/muendler/`. It is now called `elit2bib-v2.pl`.

E   Warnings and Error Messages

The following list of warnings and error messages is exhaustive. If you encounter any other error message, the code of your copy of elit2bib.pl must have been modified. If the file has not been renamed, you are holding an illegal copy under our copyright statement, unless you rename the file.

Message	Cause
Can't open perl script	You have provided a wrong path for the file elit2bib.pl at the Windows or DOS prompt. See section 3.3
Can't open input file	You have either provided a wrong path for the input file, or a wrong name or extension of the input file. See section 3.2
Can't open output file	You have provided a wrong path for the output file. See section 3.2
There were @TYPE entries with problems	elit2bib detected a problem during translation. Please check the head of the output (.bib) file for a list of problematic entries. See section 4.3
The WebSpirs .dat file did not contain any DT: entry.	elit2bib encountered no appropriate EconLit entry. Please change the display options in WebSpirs before downloading. See section 2
Any other	Your copy of elit2bib.pl is likely to contain wrong code. Please obtain an original. See page 1