

# A Gentle Introduction to Bibliography Creation Using **Biblatex**\*

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## **Abstract**

Often times the biggest frustration to new users (and even some veteran users) of  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$  is learning or finding the proper commands to execute a function. This article presents a basic introduction to bibliography construction using **Biblatex**. I show some basic document setups and common commands used to create journal ready citations and bibliographies in  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ .

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\*This is still a working paper. I ask that you do not disseminate this without permission.

# 1 Introduction

Incorporating citations into a  $\text{\LaTeX}$  document can prove to be a daunting task, even for veteran users of the program. Although bibliography packages exist that are theoretically designed to make the process easier, users still need to be comfortable with package specific commands and jargon. Unfortunately, few user-friendly guides exist that help make learning a new function or package in  $\text{\LaTeX}$  easy. All too often users must sift through poorly organized discussion forums, search endless webpages, or attempt to read incomprehensible package manuals. This article attempts to alleviate some of that stress by providing an easy to use overview of bibliography construction in  $\text{\LaTeX}$ , focusing primarily on the `Biblatex` package, due to its growing popularity and easy of customization.

In the coming section I will provide some background information on `Biblatex` and bibliography construction in  $\text{\LaTeX}$  generally. I then explain how to store your references and present basic setup commands showing the reader how to create a basic bibliography using `Biblatex`. Next, I show some of the customization features of `Biblatex`, presenting bibliographies as found in some of the top political science journals. Finally, I discuss how to make various in-text citations. Before proceeding, I should note that I am only focusing on in-text citations since this is the predominant citation style in American political science.

## 2 About Biblatex:

`Biblatex` is a bibliography-generating package in  $\text{\LaTeX}$ , designed to give the user much more control over the formatting and design of a bibliography. For our purposes here, the technical details of how `Biblatex` is designed to give greater control to the user do not matter.<sup>1</sup> However, a brief overview of some basic terminology will help provide an understanding of how `Biblatex` works as well as make the various customization commands more intuitive.

Frequently, terms like `Biblatex`, `BibTeX`, and `Biber` are used without clear distinctions between them, causing confusion, which often intimidates many new  $\text{\LaTeX}$  users. The term `BibTeX` is often used as a catch-all phrase for bibliography functions in  $\text{\LaTeX}$ , which beside blurring important distinctions causes a fair amount of confusion for some users. `BibTeX` is frequently used to refer to either a collection of references in a `.bib` file - “use a `BibTeX` file”, or an automated bibliography-formatting program. Calling a `.bib` file a `BibTeX` file is not wholly appropriate. The first, and I would submit the biggest, problem with calling a

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<sup>1</sup>See the `Biblatex` documentation online at <http://ctan.mirrorcatalogs.com/macros/latex/contrib/biblatex/doc/biblatex.pdf> for a more technical explanation.

.bib file a BibTeX file is it implies that a .bib file can only be used with BibTeX, which is incorrect. .bib is just a file extension; it is similar to a .pdf file - much like there are different programs to open a .pdf file (e.g., Adobe Acrobat Reader and Preview) there are different programs that open .bib files. The important thing to remember is that when someone refers to a BibTeX file they are talking about a file where references are stored in a specific format to be used in L<sup>A</sup>T<sub>E</sub>X.

When a L<sup>A</sup>T<sub>E</sub>X user is told to use BibTeX to make references, misinformation is being communicated. This is frequently interpreted as meaning that BibTeX is a program or command that is placed in the preamble of a L<sup>A</sup>T<sub>E</sub>X document that will create bibliographies. This is not entirely accurate. BibTeX is what is known as a “backend,” that is a subordinate program not accessed by the user that performs a specialized function on behalf of the software system. In simple terms, think of BibTeX as a bridge between L<sup>A</sup>T<sub>E</sub>X and the .bib file. It translates the .bib file into a format that L<sup>A</sup>T<sub>E</sub>X can understand.<sup>2</sup>

Going back to the comparison with pdf files, much like there are different programs that can read a pdf file (e.g., Adobe Acrobat Reader; Preview) there are different backends for L<sup>A</sup>T<sub>E</sub>X. One is BibTeX; the other is called Biber. I will not delve into the specific differences between BibTeX and Biber.<sup>3</sup> The important thing to know is that Bib<sub>l</sub>at<sub>e</sub>x can use both BibTeX and Biber as its backends. However, since the introduction of Bib<sub>l</sub>at<sub>e</sub>x 2.0, Biber is the default backend and I suggest leaving that as is. Biber offers greater stability and is generally more powerful than BibTeX.<sup>4</sup>

If this discussion of distinctions between these various terms does not make immediate sense, do not worry. The reader does not need to fully understand these concepts in order to use Bib<sub>l</sub>at<sub>e</sub>x. In the following sections I provide examples of how to use Bib<sub>l</sub>at<sub>e</sub>x and once the reader has successfully implemented these commands on their own, I would suggest revisiting this section. These distinctions will become more apparent once a L<sup>A</sup>T<sub>E</sub>X user has a more tactile understanding of how to use Bib<sub>l</sub>at<sub>e</sub>x.

### 3 Getting Started with a Basic Bibliography:

In order for Bib<sub>l</sub>at<sub>e</sub>x to read citations, they must be stored in a .bib file. If the reader already uses a citation service like *RefWorks* or *Mendeley* you can export your references in a .bib file format. Once this

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<sup>2</sup>Programmers and more highly trained computer users may take issues with my lack of precise technical detail, however my purpose here is to provide the average user with enough information so as to feel comfortable with the terms used in bibliography construction in L<sup>A</sup>T<sub>E</sub>X.

<sup>3</sup>For those interested in the distinctions between the two please visit <http://bibl<sub>l</sub>at<sub>e</sub>x-biber.sourceforge.net>.

<sup>4</sup>For those familiar with BibTeX I would still suggest using Biber as the Bib<sub>l</sub>at<sub>e</sub>x backend. There are no noticeable differences in performance or ease of use between the two. For those just getting started I recommend using Biber since BibTeX is being used less.

file is exported and saved in the same folder as your  $\text{\LaTeX}$  document you can open the `.bib` file with a source code (text) editor, *notepad* on a PC or *TextEdit* on a Mac, or even a  $\text{\LaTeX}$  editor.<sup>5</sup> Once opened, the references will appear in the follow format:<sup>6</sup>

1. `@article{Binder1999,`
2. `Author = {Binder, Sarah A.},`
3. `Journal = {American Political Science Review},`
4. `Number = {3},`
5. `Pages = {519–533},`
6. `Title = {{The Dynamics of Legislative Gridlock, 1947–96}},`
7. `Volume = {93},`
8. `Year = {1999}}`

Line 1 indicates the kind of citation, whether it is a book, an article, a webpage, and so on. After the citation type comes the name of the citation. In other words this is how the citation will be referenced within the  $\text{\LaTeX}$  document for `Biblatex` to find. My personal convention is to name each citation by author’s last name and year of publication. In this example, the citation name is `Binder1999`.<sup>7</sup> Lines 2 through 8 provide the other relevant information necessary for a bibliography.

There are two drawbacks to using a source code editor for storing citations. First, if you choose to use this in conjunction with a citation service, then every time a new citation is added you must export a new `.bib` file. Second, although you may input a new citation directly into the source code editor, doing so is tedious and requires following the precise coding scheme. A better approach is to use a citation service specifically designed for use with  $\text{\LaTeX}$ .<sup>8</sup> A  $\text{\LaTeX}$ -based citation program allows a user to directly input and/or change a citation without the need to export a new `.bib` file each time, or use a text editor to change references.

Creating a bibliography with `Biblatex` is relatively straightforward. Below is an example of a basic bibliography without any customizations.

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<sup>5</sup>The appendix to this paper discusses how to store a `.bib` in your computer’s file directory removing the need to save the reference file in the same folder as the  $\text{\LaTeX}$  document.

<sup>6</sup>The numbers before each line will not appear in your `.bib` file. I have added them to make discussing parts of a citation easier.

<sup>7</sup>The citation name may not make immediate sense, but this will be clarified in the following section where the commands used to generate in-text citations are discussed.

<sup>8</sup>For Mac users I recommend using *BibDesk*, which can be found at <http://bibdesk.sourceforge.net/>. For those working on a PC I recommend using *JabRef*, which can be downloaded from <http://www.jabref.org/>.

*preamble omitted*

1. `\usepackage[backend=biber]{biblatex}`
2. `\addbibresource{latex_guides_references.bib}`
3. `\begin{document}`
4. Unified government, in this view, boosts the prospects for legislative success, while divided government makes it harder for Congress and the president to reach agreement on issues before them `\parencite[] [521]{Binder1999}`.
5. `\printbibliography`
6. `\end{document}`

Unified government, in this view, boosts the prospects for legislative success, while divided government makes it harder for Congress and the president to reach agreement on issues before them [1, p. 521].

## References

- [1] Sarah A. Binder. “The Dynamics of Legislative Gridlock, 1947–96”. In: *American Political Science Review* 93.3 (1999) pp. 519-533.

Using just four unique commands, a  $\LaTeX$  user can quickly and easily generate a bibliography using `Biblatex`. It should be noted that you must typeset using `pdflatexmk` compiling setting. The bibliography will not compile if you typeset using  $\LaTeX$ .<sup>9</sup> Line 1 tells  $\LaTeX$  to load or use the `Biblatex` program and line 2 indicates which `.bib` file to use; both of these commands are placed in the preamble of the document.<sup>10</sup> Line 7 tells  $\LaTeX$  to generate the bibliography; without this command the bibliography will not compile. It should be noted that the placement of line 7 matters as far as layout of the document. In other words, where line 7 is placed in the  $\LaTeX$  document is where the bibliography will be when compiled. The `\parencite[] []{}` command in line 5 will be dealt with in a later section. For now just know that this is one of a few commands that indicate a type of citation.

Although the basic setup using `Biblatex` produces a bibliography with relevant information, it is both aesthetically unpleasing and incorrectly formatted for most political science journals. `Biblatex` allows the user to customize how references are presented both within the text as well as in the bibliography itself. Most journals require some variation of MLA formatting in the bibliography, where authors are listed Last

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<sup>9</sup>For those interested in why this is the case, compiling a `.tex` file with references is a multistep process. Typesetting using just  $\LaTeX$  would require many intermediate runs using the `BibTeX` setting until all references are resolved and properly assembled by the typesetting engine. By using `pdflatexmk` the typesetting engine first runs `pdflatex` on the source file, which determines which other files the source file is dependent on. In other words, `pdflatex` first determines if there are other files that need to be taken into account when typesetting. It does this by examining the log and aux files produced by the initial run and then automatically applies the backend. After doing this once, `pdflatexmk` will then go through as many iterations as necessary until all files have been collected and resolved, finally producing the bibliography.

<sup>10</sup>Remember: Unless you have changed your file directories, the `.bib` file MUST be placed in the same folder as your  $\LaTeX$  document, otherwise you will encounter compiling errors. For instructions on how to create a master bibliography, so as to not have to place the `.bib` file in the same folder as the  $\LaTeX$  document, please see the appendix.

Name, First Name, Middle initial. Using Biblatex's built-in formatting tools, the bibliography can easily be changed as seen below:

*preamble omitted*

```
1. \usepackage[style=authoryear, sorting=nyt]{biblatex}
2. \addbibresource{latex_guides_references.bib}
3. \begin{document}
4. Unified government, in this view, boosts the
prospects for legislative success, while divided government
makes it harder for Congress and the president to
reach agreement on issues before them. \parencite[] [521]{Binder1999}.
5. \printbibliography
6. \end{document}
```

Unified government, in this view, boosts the prospects for legislative success, while divided government makes it harder for Congress and the president to reach agreement on issues before them (Binder 1999, p. 521).

### References

Binder, Sarah A. (1999). "The Dynamics of Legislative Gridlock, 1947-96 . In: *American Political Science Review* 93.3, pp. 519-533.

By using the options brackets with line 1, Biblatex can easily change the formatting of the references in the bibliography. The `style` option allows the user to specify the style and format of the bibliography. Here, I have indicated that I want the *authoryear* style, which places the author's name then the year as well as orders the author's name as last, first, middle initial. Next, I have used the *sorting=nyt* option telling Biblatex the order in which I want the information to appear. This says that I want the author's name, followed by the year, and then the title. With the use of just a few stylistic commands Biblatex can easily produce journal-quality references.<sup>11</sup>

Looking at the most recent example, certain stylistics irregularities might stand out. Specifically, the period outside the quote for the title of the article as well as the "In:" preceding the journal name. These can be fixed with two additional commands.

*preamble omitted*

```
1. \usepackage[style=authoryear, sorting=nyt]{biblatex}
2. \addbibresource{latex_guides_references.bib}
3. \renewbibmacro{in:}{}
4. \begin{document}
5. Unified government, in this view, boosts the
prospects for legislative success, while divided government
makes it harder for Congress and the president to
reach agreement on issues before them \parencite[] [521]{Binder1999}.
```

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<sup>11</sup>There are different *style* and *sorting* options in Biblatex. For an overview of the different options visit <https://www.sharelatex.com/blog/2013/07/31/getting-started-with-biblatex.html>.

6. `\uspunctuation`
7. `\printbibliography`
8. `\end{document}`

Unified government, in this view, boosts the prospects for legislative success, while divided government makes it harder for Congress and the president to reach agreement on issues before them (Binder 1999, p. 521).

## References

Binder, Sarah A. (1999). "The Dynamics of Legislative Gridlock, 1947-96." *American Political Science Review* 93.3, pp. 519-533.

The addition of line 3 tells `Biblatex` to remove the "In:" from the bibliography and line 6 indicates a preference for US punctuation, which places the period inside the quotation marks. Additionally, there are customization commands that can be added to change how volume, issue, and paged are displayed.<sup>12</sup>

As I have shown in this section, `Biblatex` is a useful bibliography-generating program for `LATEX`. Due to its customizable format, `Biblatex` has grown in popularity. Indeed some journals have abandoned the `.bst` files that have been used with `natbib` and replaced them with their own `Biblatex` style package. With a few commands, a new `LATEX` user can quickly generate a bibliography without the need to type each entry individually. In the next section I will show the commands that `Biblatex` uses to generate both in-text citations as well as the corresponding bibliography entry.

## 4 Creating In-Text Citations:

When writing research documents in political science, it is very common to use a variation on MLA in-text citations. In `LATEX` there are two commands that are used to create in-text citations, the `parencite` command and the `citeyear` command. They each serve distinct functions and allow for the creation of different types of in-text citations.

When creating an in-text citation at the end of a quote, the general format is to follow the quote with (Author Year, Page). To do this in `LATEX` we would use the `parencite[] [] {}` command, as can be seen in the example below.

*preamble omitted*

```
'‘Unified government, in this view, boosts the
prospects for legislative success, while divided government
makes it harder for Congress and the president to
reach agreement on issues before them’\parencite[] [521]{Binder1999}.
```

---

<sup>12</sup>I have placed annotated `LATEX` files online at [www.jonhack.com](http://www.jonhack.com) under the page titled "Reference Guides" additional files and commands to setup a bibliography to match the styles used by various political science journals.

“Unified government, in this view, boosts the prospects for legislative success, while divided government makes it harder for Congress and the president to reach agreement on issues before them” (Binder 1999, p. 521).

The `parencite` command must contain two sets of brackets followed by a pair of curly braces. The first set of brackets is used for items that should be placed before a citation, such as “for example” or “e.g.,”. The second set of brackets is used for the page number and the curly braces are reserved for the citation name. In the previous section when discussing the use of citation management programs we briefly discussed the citation name. As this example begins to make clear the name given to a citation is how `Biblatex` knows which citation should be entered in-text. Reproduced below is the citation entry used as an example in the previous section.

1. `@article{Binder1999,`
2. `Author = {Binder, Sarah A.},`
3. `Journal = {American Political Science Review},`
4. `Number = {3},`
5. `Pages = {519-533},`
6. `Title = {{The Dynamics of Legislative Gridlock, 1947-96}},`
7. `Volume = {93},`
8. `Year = {1999}}`

Line 1 contains the name of citation, `Binder1999`. This tells `Biblatex` that I want it to cite “*The Dynamics of Legislative Gridlock, 1947-96*” by Binder. It does not matter what you call your citation, as long as you remember what the name is, `Biblatex` will find it in your `.bib` file and insert it into the document. To make this point clear, below is another example:

1. `@book{Arnold1990,`
2. `Address = {New Haven; CT},`
3. `Author = {Arnold, R. Douglas },`
4. `Publisher = {Yale University Press},`
5. `Title = {{The Logic of Congressional Action}},`
6. `Year = {1990}}`

In this citation entry, the citation name is `Arnold1990`. Using the command `parencite[] [33] {Arnold1990}` would produce a citation that says (Arnold 1990, p. 33). Line 1 of any citation used by `Biblatex` will always be the citation name.

Although the use of the `parencite[] [] {}` command produces useable in-text citations, the current format does not adhere to the style guidelines for many journals. Instead of (Binder 1999, p. 521), we want (Binder 1999, 521). To do that two additional commands are added to the preamble:

```
1. \usepackage[style=authoryear, sorting=nyt]{biblatex}
2. \addbibresource{latex_guides_references.bib}
3. \renewbibmacro{in:}{}
4. \DeclareFieldFormat{postnote}{#1}
5. \DeclareFieldFormat{multipostnote}{#1}
6. \begin{document}
7. ‘‘Unified government, in this view, boosts the
prospects for legislative success, while divided government
makes it harder for Congress and the president to
reach agreement on issues before them’’\parencite[] [521]{Binder1999}.
8. \uspunctuation
9. \printbibliography
10. \end{document}
```

The inclusion of lines 4 and 5 tells `Biblatex` that it should not include the “p.” before the page number in the in-text citation, which would produce the following:

“Unified government, in this view, boosts the prospects for legislative success, while divided government makes it harder for Congress and the president to reach agreement on issues before them” (Binder 1999: 521).

To make a citation that references a work but does not directly quote from it, we again use `parencite[] [] {}` however this time we only fill in the curly braces, as can be seen in the example below:

*preamble omitted*

```
1. Unified government, in this view, boosts the
prospects for legislative success, while divided government
makes it harder for Congress and the president to
reach agreement on issues before them \parencite[] [] {Binder1999}.
```

Unified government, in this view, boosts the prospects for legislative success, while divided government makes it harder for Congress and the president to reach agreement on issues before them (Binder 1999).

It is common in political science to use a string of citations to support a claim. For example, you want to cite the following string of authors (Arnold 1990; Bailey and Maltzman 2011; Binder 1999). To do this in

L<sup>A</sup>T<sub>E</sub>X we again use the `parencite [] [] {}` command.<sup>13</sup>

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<sup>13</sup>When dealing with multiple citations the default is to list the citations in alphabetical order. To have the citations ordered chronologically another option is needed in the `BibLaTeX` command in the preamble of the L<sup>A</sup>T<sub>E</sub>X document. Here is the code:

```
\usepackage[backend=biber, style=authoryear, sorting=nyt, sortcites=year]{biblatex}.
```

*preamble omitted*

1. At the state-level, legislatures implement policies adopted by neighboring states `\parencite[] []{Arnold1990, Bailey2011, Binder1999}`.

At the state-level, legislatures implement policies adopted by neighboring states (Arnold 1990; Bailey and Maltzman 2011; Binder 1999).

In addition to a string of authors, often a researcher will cite the same author twice as in the following: Procedural choice matters with respect to legislative gridlock (Binder 1996, 1999). This is similar to the example above where we used the `\parencite[] []{}` command.

*preamble omitted*

1. Procedural choice matters with respect to legislative gridlock `\parencite[] []{Binder1996, Binder1999}`.

Procedural choice matters with respect to legislative gridlock (Binder 1996, Binder 1999).

The problem with this however is that the author's name is listed twice, (Binder 1996, Binder 1999). Instead we want (Binder 1996, 1999). To do that we need to include the `icomp` option to the Biblatex command. Here is an example below:

```
1. \usepackage[style=authoryear-icomp, sorting=nyt]{biblatex}
2. \renewbibmacro{in:}{}
3. \addbibresource{latex_guides_references.bib}
4. \DeclareFieldFormat{postnote}{#1}
5. \DeclareFieldFormat{multipostnote}{#1}
6. \begin{document}
7. Procedural choice matters with respect to legislative gridlock \parencite[] []{Binder1996, Binder1999}
```

Procedural choice matters with respect to legislative gridlock (Binder 1996, 1999).

Frequently, researchers will use terms like “i.e.,” or “e.g.,” before referencing citations. In the example below I show how to use `\parencite[] []{}` to do just that.

```
1. Legislative gridlock as measured by Mayhew is problematic \parencite[e.g.,] [525]{Binder1999}.
2. Looking at institutional designs \parencite[see e.g.,] []{Arnold1990, McCubbins1994}.
```

Legislative gridlock as measured by Mayhew is problematic (e.g., Binder 1999: 525).

Looking at institutional designs (see e.g., Arnold 1990; McCubbins, Noll, and Weingast 1994).

In addition to the `\parencite[] []{}` command there is also the `(citeyear[] {})` command. This command is used when citing the year and/ or page, but the author's name is not included. For example:

According to Binder, “The effects of such electoral shocks are likely conditioned by the length of time a new congressional majority was in the minority” (1999, 521). Here, the author is mentioned in the body of the document thus circumventing the need to place the name in the citation. To do this in L<sup>A</sup>T<sub>E</sub>X we use the `(citeyear[]{})` command.

*preamble omitted*

```
1. According to Binder, “The effects of such electoral shocks are likely conditioned
by the length of time a new congressional majority was in
the minority” (\citeyear[521]{Binder1999}).
```

According to Binder, “The effects of such electoral shocks are likely conditioned by the length of time a new congressional majority was in the minority” (1999: 521).

Similar to `parencite[] [] {}`, the brackets in `(citeyear[]{})` are used for the page number and the curly braces are used for the citation name. Another way to use `(citeyear[]{})` is to mention the author in text and then place the year in parenthesis. For example: Binder (1999) finds that legislative gridlock increases in a bicameral legislature. Using `(citeyear[]{})` we can quickly produce a similar citation.

*preamble omitted*

```
1. Binder (\citeyear[]{}{Binder1999}) finds that legislative gridlock increases in a bicameral legislature.
```

Binder (1999) finds that legislative gridlock increases in a bicameral legislature.

As this section shows, the use of `parencite[] [] {}` and `(citeyear[]{})` can quickly create proper in-text citation and the subsequent bibliography in the Bib<sub>l</sub>at<sub>e</sub>x package. There are many more macros and commands that can be added to the L<sup>A</sup>T<sub>E</sub>X document to change the format of these citations, but this section has provided a basic introduction to Bib<sub>l</sub>at<sub>e</sub>x.

## 5 Conclusion:

This paper offers researchers the basic tools to create publication ready bibliographies using the Bib<sub>l</sub>at<sub>e</sub>x package. In addition to its customizable features, Bib<sub>l</sub>at<sub>e</sub>x is being actively developed and has a growing community of users developing new macros and other useful subcommands. The presence of a robust user-community means there are many helpful resources online to answer more advanced questions and new versions with greater platform stability under development. There are many more customizable features in Bib<sub>l</sub>at<sub>e</sub>x, which can all be found in the documentation for the package. This article is just the proverbial

“tip of the iceberg” but should be a useful aid for those wishing to creating automated bibliographies in L<sup>A</sup>T<sub>E</sub>X.

## References

Arnold, R Douglas (1990). *The Logic of Congressional Action*. New Haven; CT: Yale University Press.

Bailey, Michael A. and Forrest Maltzman (2011). *The Constrained Court: Law, Politics, and the Decisions Justices Make*. Princeton; NJ: Princeton University Press.

Binder, Sarah A. (1996). “The Partisan Basis of Procedural Choice: Allocating Parliamentary Rights in the House, 1789–1990.” *American Political Science Review* 90 (1): 8–20.

— (1999). “The Dynamics of Legislative Gridlock, 1947–96.” *American Political Science Review* 93 (3): 519–533.

McCubbins, Mathew D., Roger G. Noll, and Barry R. Weingast (1994). “Politics and the Courts: A Positive Theory of Judicial Doctrine and the Rule of Law.” *Southern California Law Review* 68: 1631–1683.

## Appendix: Creating a Master Bibliography

Creating a master bibliography can be very useful. Instead of creating new bibliographies for each article, or copying and pasting the same `.bib` file into different folders, you can create a single bibliography that can be recognized and used by any  $\text{\LaTeX}$  document you produce on your computer. In what follows, I present information on how to create a root-bibliography for your private computer. It should be noted at the outset that the steps provided below will not necessarily work for cloud storage (such as Dropbox or Google Drive), nor will this necessarily work across multiple user platforms (e.g., servers, or multiple profiles on the same computer).

### For Mac Users:

If you are using a Mac the first step will be to locate your overall bibliography.<sup>14</sup> Once found, I suggest placing a copy on your desktop for now. It will make moving files around easier. The next step is to locate the `texmf` folder for your  $\text{\LaTeX}$  distribution.<sup>15</sup>

To locate your `texmf` file go to the top bar of your main screen where the Apple icon is. To the right of the icon should be Finder. Four words to the left of Finder should be Go. Click on Go and when the dropdown menu appears push the option button on your keyboard (that is the key between control and command). When you push the option button you should notice that the Library folder appears. Click on the Library folder and a new Finder window should appear. Scroll down towards the bottom and you should see a folder title `texmf`. If you do not see this folder click on the folder that says `texlive`, click on the most up-to-date distribution folder and see if `texmf` is in there.

If you have found the `texmf` folder keep reading. If not jump down to the next paragraph. Click on the `texmf` folder, inside should be seven folders: `bibtex`, `doc`, `fonts`, `generic`, `scripts`, `source`, `tex`. Click on the `bibtex` folder and inside you should see two additional folders, the `.bib` and the `.bst` folders. Drag your full bibliography to the `.bib` folder and you are done. That's it.

If, when searching through your library folder you were unable to find the `texmf` folder then you will need to generate one. You could create a new folder through *Terminal*, however that can be tedious. Instead I recommend using the “make-local-texmf” application that was written by Alan Munn at MSU.

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<sup>14</sup>I am assuming that users already have a “master bibliography”, that is, a single `.bib` file that you constantly update and keep all of your references in. If you do not, I would suggest using *Bibdesk* or some other reference program to create an overall bibliography and save it to your desktop for now.

<sup>15</sup>A quick word about the `texmf` folder. TeX distributions expects to find personal additions such as private style files (e.g. `.sty` or `.bst`) or packages not part of the main distribution in a local folder. The name of this folder is “`texmf`” and it has a specific structure of sub-folders so that the TeX programs can correctly find files.

This application sets up this directory for the first time, saving you the effort of creating all the subfolders in their proper places. A copy of this application can be found on my website:

<http://www.jonhack.com/#!reference-guides/c2ku>.

Once you have downloaded the application you may need to change the security settings on your computer to run the application.<sup>16</sup> After running the application click on the button that says “Take Me There” - this will bring you to the texmf file which has now been created in your Library folder. Click on the bibtex folder and inside you should see two additional folder, the .bib and the .bst folders. Drag your full bibliography to the .bib folder and you are done. That’s it.

### **For PC Users:**

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<sup>16</sup>To do so, click on System Preferences >> Security & Privacy >> General. Towards the bottom it should says “Allow apps downloaded from:” you want the circle that says “Anywhere” to be selected. Once you have done that try running the make-local-texmf application again. When the application has been successfully executed you may return to your previous security settings.