A Guide to PDF for Scholars
Using the bepress.com system

Note: This is a *hypertext* document. Links are indicated by colored text, like this.

How to Use this Manual

Use either the Table of Contents or the bookmarks as a hypertext menu to this document.

Because the bepress.com system for academic publishing depends on the proper use of Adobe's portable document format (PDF), bepress.com has put together this manual as a resource for those using our system and, thus, involved with PDF documents. That said, many, if not most, authors, reviewers, and editors will have no need for this manual. Whether because the documents they produce have straightforward formatting, their PDF-related software is ideally set up, or they're just plain lucky, they can produce quality PDF documents with a single click or two. Others may, however, have need of some of the information contained in this manual. Few, if anybody, will need to read this manual in its entirety.

Disclaimers

Although every effort has been made to check the accuracy of the information contained in this manual, no warranty or guarantee, either expressed or implied, is made as to its correctness.

Report any mistakes, omissions, or other problems with this manual to `pdfproblems@bepress.com`.

The use of general descriptive names, registered names, trademarks, etc. in this manual does not imply, even in the absence of specific statement, that such names are exempt from the relevant protective laws and regulations and, thus, free for general use.

Conventions

- Menu commands, such as **File**, are written **like this**. That is, **File** means select the file menu.
- Sequences of menu commands are indicated in the following manner: **File** ⇛ **Print**, indicating that you should first select the file menu, then select the print submenu.
- ALT and CTRL denote the alt and control (ctrl) keys. Hence, for instance, ALT-f would mean type the alt and "f" keys simultaneously and CTRL-q would mean type the control and "q" keys simultaneously.
- The separator

  ——OR——

  is used to indicate where one option ends and the next begins.
- Text that looks `like this` indicates a command or phrase to be typed in.
- Text offset with angle brackets, ⟨like this⟩, denotes a variable. For example, `Frontiers in` ⟨`field`⟩ indicates you are to type "Frontiers in" followed by the name of field (e.g., "Industrial Organization").
- Text that looks like this is a heading or label.
- Boxes refer to spaces that look like this ☐. The phrase "⟨Box Title⟩ box" means the box labeled by ⟨Box Title⟩ (the label is usually to the left of the box it labels).
- On-screen "buttons" are indicated as such [Push Me]; that is, [Push Me] is a button-like object that appears on the screen with the label "Push Me."

Contents

1 Getting Started

The steps in producing documents in PDF are

1. Installing PDF-generating software (see page 6).
2. Setting up options for Distiller (see page 8).
3. Constructing your document with an eye toward PDF generation and, then, generating a PDF file (see page 15 for working with Microsoft Word; page 13 for working with TEX or LATEX ; or page 9 for general advice).
4. Checking over the PDF file (see page 23).

2 PDF and bepress.com

The bepress.com system has been designed to improve the scholarly publication process for authors, reviewers, editors, and readers of scholarly works. Among its many improvements, the most significant is that bepress.com has dramatically shortened the period between initial submission and the final publication of a peer-reviewed article. Much of this time savings is due to our innovative use of *electronic* publication.

To make electronic publication work, however, we need to use a common standard. For this, we've adopted Adobe's Portable Document Format (PDF). Because software for reading PDF documents exists for almost all platforms and is *freely* available from Adobe, PDF makes sense as a *"lingua franca"* for the electronic age and, more specifically, for the bepress.com system.*

Although the production of PDF documents is generally a straightforward matter, there are, nonetheless, some potential pitfalls; awareness of which can ensure that a high-quality document is produced. This document, then, is intended to help you produce documents that meet both your needs and ours. Reading it will save considerable headaches down the road, speed processing, help ensure that your document looks suitably professional and scholarly, and that it can be read by others.

This document does *not* cover how to submit an article to a bepress.com journal, nor the layout and copyediting conventions to which your final manuscript should accord. For layout information, please see

Final Manuscript Preparation Guidelines for bepress.com *Journals*,

which can be found at www.bepress.com/manuals.html. Also see the bepress.com web site for additional information on submitting articles and reviews.

3 Software Options for Producing PDF Files

You have four options for producing PDF files:

*If you don't currently have Adobe's Acrobat Reader, you can download it (*for free*) from
http://www.adobe.com/products/acrobat/readstep.html .
Follow the instructions given at that web site to download the correct reader for your computer platform.

1. You can purchase software from Adobe that allows you to convert your documents into PDF. There is often a discount given to academics, so check with your college bookstore or other source of academic software. This is the option we will consider in greatest detail here. Click here if you're following this
2. You can use software from another vendor or provider to convert your documents into PDF. Some of this software can be downloaded for free. Some drawbacks to this approach are (i) quality is not always sufficiently high; (ii) you may be more restricted as to the means in which you construct your document (i.e., these programs can typically convert fewer formats into PDF than can Adobe's software); and (iii) their setup and use is not as straightforward as Adobe's. We briefly discuss one of these alternative products below (page 7).
3. You can use an online service such as Adobe's (visit
   http://www.adobe.com/services/createpdf/pdfprodinfo.html
   for more information). Online services generally charge (although they often give a few free trials). Adobe, for instance, currently gives three free trials, after which it charges $9.99/month for access. There are, however, some important drawbacks to this solution, which we briefly discuss below (page 6).
4. You can have bepress.com produce a PDF file for you from either an electronic version of your paper or a physical copy (we use a scanner to convert the latter into a PDF file). Because we are not set up to handle such requests automatically, this is a labor-intensive process for us. Correspondingly, we currently charge $50 for this service to recoup our costs. Send an e-mail to pdf@bepress.com to inquire about whether we can produce PDF from your native wordprocessing file or will require a physical copy.

Your choice of option should be governed by (i) the wordprocessing software you use; (ii) your sophistication in installing software; (iii) how important quality is (e.g., final submission requires a very high-quality PDF, while a lower quality PDF is acceptable for initial submission); and (iv) relative expense.

3.1 Using Adobe's Online Service

Adobe offers an online service (for information go to
http://www.adobe.com/services/createpdf/pdfprodinfo.html).
This service can be an easy way to produce quality PDF files and it saves you the headaches of setting up the necessary software on your own computer. It has, however, some drawbacks; a number of which could be critical for scholarly articles:

1. The online system does not permit you the kind of control over the conversion process that you would have if you did it on your own machine. Does this matter? Yes, if you're using fonts other than Times Roman or Arial, or you have mathematical expressions, or your document contains figures, or you use special symbols (e.g., unusual ligatures, such as "ffl"; unusual accents, such as o͡o; or unusual characters such as ♡). In these situations, an online system is probably *not* ideal. Of course, if you're already a subscriber or have free trials left, you can test whether it matters empirically.

2. The online system can convert from only a limited number of wordprocessing formats into PDF:

   - Microsoft Word (.doc)
   - Microsoft Publisher (.pub)
   - Rich Text Format (.rtf),
   - ASCII text format (.txt)
   - Web pages (.htm, .html)
   - Adobe InDesign (.indd),
   - Adobe FrameMaker (.fm),
   - Adobe PageMaker (.pm, .pm6, .p65)
   - Corel WordPerfect (.wpd)
   - PostScript (.ps) and encapsulated PostScript (.eps)

   Note: If your format is not listed above, the only way to use the online service is to first convert your document into one of accepted formats. Both Adobe and bepress.com recommend you convert

it into PostScript (see Section 7, page 12, for how) because this will yield the fewest conversion problems both from your native format into PostScript and from PostScript into PDF.

3. Once you go beyond the free trials, the annual cost of using the online service is roughly the same as the academic price for Adobe's software.

3.2 Using Non-Adobe Software

PDF can be produced by software other than that sold by Adobe. One of the best alternatives is to use Ghostscript, which is *free*. The drawback to Ghostscript is you need to be able to produce a PostScript version of your article (in general, this isn't too hard, see Section 7). TEX and LATEX users have other *free* options as well, see Section 8. The newest versions of Corel's WordPerfect have a "Publish to PDF" feature that allows you to directly make PDF files from WordPerfect, see Section 10.

Ghostscript. As of this writing Ghostscript can be downloaded, *for free*, from

http://www.cs.wisc.edu/ ghost/aladdin/get601.html .

Instructions for installing Ghostscript and a viewer interface appropriate for your operating system are given there (for Windows, the viewer interface is GSView; for UNIX/Linux, it's either GV or Ghostview; and for Macs, it's the Mac GS Viewer). For Windows, only two self-executing files need to be downloaded. To use Ghostscript to produce PDF, open a PostScript version of your file under the viewer interface (go to Section 7 for how to produce a PostScript file). Depending on the interface, there is a command to convert into a PDF file. In GSView, under Windows, it's **File** ⇛ **Convert**. If you can run a command line, then the script `ps2pdf` can be used as an interface to Ghostscript (usage: `ps2pdf` ⟨`input.ps`⟩ ⟨`output.pdf`⟩, where "input" is the name of the PostScript file to be converted and "output" is the name of the PDF file to be created). Generally, there is good online documentation for using Ghostscript and the various viewer interfaces.

The default under Ghostscript is to embed fonts (see page 9), so the font embedding issue does not arise when you use Ghostscript as it does when you use Adobe Distiller.

There are two drawbacks to Ghostscript over Adobe's software: One, you must first produce a PostScript version of your document before you can produce a PDF version. [Section 7 describes how

you can readily produce PostScript.] Two, the PDF files produced by Ghostscript do not always open properly under the Adobe PDF Reader. Make sure, if you produce PDF in this way, that you test it using Adobe's PDF reader (which can be downloaded, *for free*, from

http://www.adobe.com/products/acrobat/readstep.html).

Given the large installed-base of the *Adobe* PDF reader it is *essential* that your document be compatible with it.

4 Using Adobe Software

Acrobat offers two means of producing PDF: One is a more direct translator called Acrobat PDFWriter, the other is a more indirect translation method called "distilling," done using the program Acrobat Distiller.

Use Acrobat Distiller rather than PDFWriter. Distiller produces higher quality output and is more configurable than PDFWriter.

4.1 Setting up Distiller

To use Distiller properly, you need to set it up. To do so, open Distiller and follow these steps:

4.1.1 Select PrintOptimized

Although PDF can be viewed on screen, we anticipate that most readers of bepress.com journals will wish to print. Therefore, at the initial screen (window) select **Job Options**. From the available options, select **PrintOptimized**.

4.1.2 Fix Settings

Next either type CTRL-j or select **Settings** ⇛ **Job Options**. A new window should appear with five tabs across the top (**General**, **Compression**, **Fonts**, **Colors**, **Advanced**).

1. Select **General**.
   (a) Make sure the check box Optimize PDF is selected (has a check mark in it). If it is not checked, then simply "click" when the mouse is pointing inside that box. A check mark should appear in it.
   (b) Make sure the number in the Resolution box is at least 600. If it is not, delete the number in the box and replace it with 600.
2. Now select the **Fonts** tab.
   (a) Make sure the check box "Embed All Fonts" is checked. If it is not checked, then simply click when the mouse is pointing inside that box. A check mark should appear in it.
   (b) Make sure the check box "Subset All Embedded Fonts Below" is checked. If it is not checked, then simply click when the mouse is pointing inside that box. A check mark should appear in it.
   (c) To the right of the "Subset All Embedded Fonts" tag is a text box with a % symbol to the right of it. Delete the contents of this box and enter 99.
   (d) In the box to the right of "When Embedding Fails" choose either "Warn and Continue" or "Cancel Job." Either is fine.
3. Now push (click on) **OK**. The window should close.

5 Proper Preparation of Electronic Documents

The critical issue in the production of electronic documents is ensuring compatibility across different computers and operating systems. Because software capable of displaying and printing Adobe's portable document format (PDF) is freely available for a multitude of platforms and is able to handle PDF files created on a multitude of platforms, bepress.com has adopted it as it means of disseminating articles.

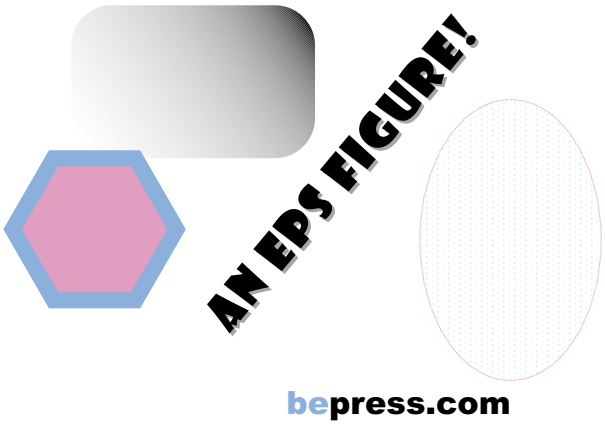
The trick, then, is to get your document from its native electronic format (e.g., *Word* or LaTeX) into PDF.

5.1 Wordprocessing Issues

Even before you (or we) attempt to produce a PDF version of your paper, there are some steps to take within your wordprocessor:

- Avoid unusual fonts. Except for TeX and LaTeX users, if at all possible use Times Roman for your *serif* font (the font that looks like this) and Arial or Helvetica for your *sans serif* font (the font that looks like this).
- The best kind of fonts to use are Type 1 fonts. Use them exclusively if at all possible. For Windows users, TrueType fonts are also fine (although given the choice Type 1 are better). The use of Type 1 or TrueType fonts is the best way to insure good-looking PDF files. Avoid bit-mapped fonts, such as Type 3 fonts, these look rather bad on the screen when translated into PDF and may print poorly as well.
- Avoid the use of bit-mapped images unless they have high resolution. For instance, don't use the Word Art feature from within *Word*. Don't cut and paste GIF or JPEG images into your document.
- If using a WYSIWIG wordprocessor, such as Word or WordPerfect, avoid, if at all possible, using the native drawing tools for figures. These tend to produce figures with too low a resolution for rendering good-looking PDF. Because PDF is a "distilled" version of PostScript, the best way to avoid such problems is to save your figures as Encapsulated PostScript (EPS). We therefore recommend using a drawing package that can produce high-resolution images and put them into your file as EPS. Adobe's Illustrator, Macromedia's FreeHand, and many other drawing packages allow you to save your output as EPS. A *free* drawing package capable of saving output as EPS comes with Sun's StarOffice, a *free* office suite.

- When working with figures, set a high resolution (at least 300 dpi). Most major drawing packages offer the opportunity to save figures as EPS. Once the figure is saved as an EPS file, import it into your wordprocessor using its method for figure importation. [Note: To see the figure from within most wordprocessers have the drawing package save the EPS file with a TIFF preview.] To see the quality of an EPS figure consider the following:



6 The Use of Links and Other PDF Features

Two of the most impressive features of PDF are its ability to include hypertext (i.e., links from one part of a document to another or from a document to an external target, such as a web page) and to allow the inclusion of JavaScript programming. Although their use is one of the attractive features of publishing using the bepress.com system, they, like any powerful feature, can lead to problems. For that reason we limit their use.

As of this writing,[†] the only permissible links within a PDF document are to other places in the *same* document or to other bepress.com articles (e.g., in the references). This restriction exists because it is

[†]It is possible that, longer run, we will allow you to upload ancillary files containing features such as sound, video, or other files that can't be incorporated into a PDF document directly.

the only way to ensure our publications are archival. Links come and go. Neither authors nor we can guarantee that a link target outside our web site will always be there.

Using JavaScript programming within your PDF can enliven your document (e.g., allow readers to experiment with different values in simulations). It is the author's(s') responsibility to make sure these programs are thoroughly tested. bepress.com can*not* be responsible for the fitness, implied or otherwise, of any such programs.

It is possible to produce PDF files that turnoff or hide certain features of the Acrobat Reader. Under no circumstances should features of the Reader be turned off or hidden.

It is also possible to produce PDF files that make calls to other applications (e.g., open *Word*). Use of this feature is absolutely *prohibited*.

7 Converting Files to PostScript

Many ways of producing PDF, including possible use of Adobe's Distiller, require the intermediate step of converting from native format (e.g., Word's format) into PostScript.

There are two ways to produce PostScript. First, your wordprocessor may have the option of producing PostScript output or there is some converter that you can run (e.g., TEX and LATEX users can use `dvips`). Second, you can install a PostScript printer driver and configure it as a printer that prints to file. An appropriate printer driver can likely be found on the installation CD for your operating system or you can download one from

http://www.adobe.com/products/postscript/main.html .

7.1 Setting up a Generic Postscript Driver

Under Windows, the driver can be downloaded from

http://www.adobe.com/products/postscript/main.html .

as a self-extracting file that will install itself if you double-click on its icon. During installation, you will be asked to choose a "port." Choose (select) FILE.

After installing the printer driver, you need to follow these steps:

1. Open the Printers Control panel. This can be accomplished by
   (a) Pushing Start at the bottom of your screen (assuming you have not moved the main Windows navigation bar).
   (b) Selecting **Settings** ⇛ **Printers**.
   (c) A new window entitled "Printers" should open.
2. Click on the icon for the new printer (it will be called something like Generic PostScript Printer). A new window will open.
3. Select **Printer** ⇛ **Document Defaults** . . . . A new window will open.
4. Select **Document Options** ⇛ **PostScript Options** ⇛ **TrueType Font Download Option**. Choose "Outline" as the setting.
5. Select **PostScript Output Option**. Change the option to "Optimize for Portability." This will help ensure that your PostScript file is optimal for producing PDF.
6. Push OK at the bottom of this window. It should close.
7. Close the "Generic PostScript Printer" window. Close the "Printers" window.

7.2 Using a PostScript Printer Driver

To use a PostScript printer driver as an intermediate step between your wordprocessing program and Adobe Distiller (or Ghostscript) simply "print" using that printer driver.

8 Additional Information for TEX and LATEX Users

TEX and LATEX users can download, for free, the package `dvipdfm` from CTAN—if it's not already on their system. This program will translate your `dvi` file into PDF. As of this writing, information about `dvipdfm` is available from http://gaspra.kettering.edu/dvipdfm/. An advantage of `dvipdfm` is that, by default, it embeds Type 1 fonts (see page 9). It also allows the use of `\special` commands to directly control the PDF output. A disadvantage, however, is that it doesn't necessarily do well with other PostScript specials, for instance those supplied by PSTricks.

TEX and LATEX users can also use PDFTEX or PDFLATEX, which will produce PDF files directly from the raw TEX or LATEX code. These packages (actually PDFLATEX is just a LATEX interface to PDFTEX) can be downloaded, for free, from CTAN (again it may already be installed on your system). Like `dvipdfm`, it will embed Type 1 fonts.

Our recommendation for TEX and LATEX users, however, is that, if they own Acrobat Distiller, they use `dvips` to produce a PostScript file, which they should then distill. *Be aware, however, that the* default *for* `dvips` *is to use Type 3 fonts. Make sure, therefore, that you use the option to force the use of Type 1 fonts. Using MikTEX, this is accomplished by using the flag* `-Pcmz` *with the* `dvips` *command.*

8.1 Using dvips and Acrobat Distiller—A Step-by-step Guide

These instructions will not work with `dvi` files created using Scientific Word/Workplace — users of Scientific Word/Workplace should see Section 8.2.

1. From the command line enter `dvips` ⟨`input file.dvi`⟩ `-Pcmz`.[‡]
2. You should get a message that includes "$->$ ⟨input file.ps⟩." In addition, you should see a number of *.pfb files listed (these indicate that Type 1 fonts have been used).
3. Open Acrobat Distiller.

[‡]If you are using WinEdt, then you can just push dvi ps, provided you've modified the `dvips.bat` file to use the flag `-Pcmz`.

4. Enter the commands: **File ⇛ Open** (alternatively, type CTRL-o).
5. A window entitled Acrobat Distiller — Open PostScript File will open.
6. Find the file ⟨input file.ps⟩ created in step 1 and select (click) on it.
7. Press Open at the bottom of the window.
8. That window will close and a new one, entitled Acrobat Distiller — Specify PDF File Name will open. It will offer you the option of saving the PDF file as ⟨input file.pdf⟩. If this is okay, press Save. If it isn't okay, type a new name in the File name: box. Then press Save.
9. Distiller should then run. If it doesn't, see Section 12.6. Close Distiller.
10. Proceed to testing your PDF (Section 11).

8.2 For Scientific Word/WorkPlace Users

Scientific Word and *WorkPlace* are popular front ends to LaTeX for Windows Users. The underlying TeX engine, TrueTeX, however produces `dvi` files that don't work with `dvips`. The best solution for users of *Scientific Word* or *WorkPlace* (hereafter, SW) is to do the following:

1. Preview (**Typeset ⇛ Preview** or push the "preview" button) your document.
2. This should open the TrueTeX DVI Previewer.
3. Print to Adobe Distiller:
   (a) **File ⇛ Print**
   (b) This will open the Print Window.
   (c) In the Name: box, select "Acrobat Distiller" as the printer. The name "Acrobat Distiller" should now appear in that box.
   (d) Push (click on) Properties.

(e) A new window should open with two tabs at the top: "Page Setup" and "Advanced."

(f) Select (click on) the "Advanced" tab.

(g) In the top panel of the window will be an Explorer-type tree.

(h) The top node of the tree is called "AdobePS Acrobat Distiller Document Settings." Off this node are three nodes "Paper/Output," "Graphic," and "Document Options."

(i) Expand the "Graphic" node if not expanded (i.e., if a plus sign (+) appears in the box next to its icon). To expand, click on the plus sign.

(j) Four new nodes should be visible and the plus sign will turn to a minus sign (−). One of the nodes is labeled "Resolution." Click on it.

(k) In the bottom pane of the window a series of resolutions will be shown (a list of "nndpi"s, where nn is some number). Scroll through this list and select (click on) the highest number (this should be about 4000dpi).

(l) Push OK.

(m) The new window should close leaving the print window. Click on (push) OK.

4. The PDF file will be placed in the usual location for Distiller output (in a typical installation of Distiller, that would be Program Files\Adobe\Acrobat 4.0\PDF Output\).

9 Additional Information for Word Users

9.1 Fonts

The best way to ensure a good-looking PDF document is to use only the following fonts:

- Times-Roman (Times New Roman)
- Arial (or Helvetica)
- Symbol

9.2 Changing Fonts

If you've already written your document and used fonts other than those listed above, you can change them. You have two options: If *everything* is in the font you wish to *change from*, then simply select it and then change the font. To change the font, use the toolbar and change the name of the font shown using the pull-down menu.

——OR——

If *not* everything is in the font you wish to *change from*—that is, for example, because you've inserted special symbols—then follow these steps:

1. Go to the beginning of the document (in Word).
2. Select **Edit** ⇛ **Replace** (alternatively, type CTRL-h). A new window should appear.
3. If there is a **More** button, click on it (if you don't see this button, but see a **Less** button, then you're okay). The new window should get larger and more options should be available.
4. If the "Use wildcards" box is not checked, point the mouse inside the box and click. A check mark should now appear.
5. Have the mouse point to inside the "Find what" box. Click until the word just above and to the left of the three buttons at the bottom of the window says "Find."
6. Select the **Special** button. A menu should appear. Select "Any Character." A ? should now appear in the "Find what" box.
7. Select the **Format** button. A menu should appear. Select "Font . . . " A new window should appear.
8. In this newest window, either type in the box beneath "Font:" the name of the font you want *to change* or choose it from the menu below the box. Once the name of the change-from font appears in the box, click on **OK**. This newest window should disappear.

9. In the open window, have the mouse point to inside the "Replace with" box. Click until the word just above and to the left of the three buttons at the bottom of the window says "Replace."
10. Select **Format** ⇛ **Font** . . . . The font window should reappear.
11. In the font window, either type in the box beneath "Font:" the name of the font you *to which you want to change* (e.g., Arial or Times New Roman) or select it from the menu below the box. Once the name of the change-to font appears in the box, click on **OK**. The font window should again vanish.
12. Now select **Replace All** from the row of buttons in the middle of the window.
13. Word will work for a bit before it produces a message saying that it has replaced N characters, where N is the number of characters that were in the change-from font.
14. Finally, select **Close** from the row of buttons in the middle of the window to close the window (if it didn't close automatically).

9.3 Figures

Figures are another source of PDF problems. For this reason, it is best to avoid constructing figures from within Word itself (e.g., using its drawing capabilities or the WordArt add on). These are of insufficiently high resolution to produce good PDF. Instead, use figures stored in encapsulated PostScript (EPS) format.

Most drawing programs (e.g., Adobe Illustrator, Macromedia Freehand, etc.) have an option to save figures as EPS. How to acquire and use such software for producing figures is beyond the scope of this manual. For more information, contact `pdfproblems@bepress.com`.

To import an EPS figure into your Word document follow these steps:

1. Move to the place in your document where you wish the figure to be positioned.
2. Select **Insert** ⇛ **Picture** ⇛ **From File** . . . . A new window should appear.

3. In this window make sure either that it says "All Pictures" in the "Files of type:" box or it says "Encapsulated PostScript." If it doesn't, use the menu to select one of these.
4. Using the "Look in:" box, go to the directory in which the figure you wish to import is located.
5. Once there, select it from the list of files given in the large box.
6. Select **Insert**. The window should close and the figure should appear in your document.[§]
7. You can move and size the figure just as you would any other figure in Word (consult your Word manual for how to do this if you have questions).

9.4 Typing Mathematics

Mathematical text can also create problems that make producing a quality PDF document from Word difficult. Many of these problems stem from the use of the Equation Editor, which comes with Word. If at all possible, avoid using the Equation Editor. Ways to do this include:

1. Use regular italic Times Roman letters whenever possible for variables. For example, "Fermat's conjecture was that $x^n + y^n = z^n$ has no solutions in the integers for $n \geq 3$."
2. Subscripts and superscripts are straightforward in Word: CTRL-= will switch from normal text to subscripts (type CTRL-= to switch back). For example, H_2O uses the key strokes: SHIFT-h CTRL-= 2 CTRL-= SHIFT-o. For superscripts, SHIFT-CTRL-= will switch from normal text to superscripts (type SHIFT-CTRL-= to switch back). For example, $3^2 = 9$ uses the key strokes: 3 SHIFT-CTRL-= 2 SHIFT-CTRL-= = 9.
3. Use the Symbol font for non-Latin (e.g., α, β, etc.) and non-keyboard characters (e.g., $\times$, $\div$, $\int$, etc.). To facilitate use of the Symbol font you might wish to create the following macros: `Symbol` and `Times` (or usual non-symbol font). To create `Symbol` do the following:

   (a) Select **Tools** $\Rightarrow$ **Macro** $\Rightarrow$ **Macros** ... (alternatively, type ALT- F8).

[§]Depending on whether you saved your EPS figure with a TIFF preview or not, it will either appear as a picture or as a box.

(b) The Macros window should open. In the box below "Macro name:" type `Symbol`.

(c) Next select **Create** from the column of buttons on the right portion of the window. The Microsoft Visual Basic editor should appear.

(d) There should be a large window in which the following code will appear:

```
Sub Symbol()
'
' Symbol Macro
' Macro created ⟨DATE⟩ by ⟨A NAME⟩
'

End Sub
```

(e) The cursor should be on the blank line between the final `'` and the expression `End Sub`. If not, place the cursor there.

(f) On that line type `Selection.Font.Name = ''Symbol''`. The code should look like:

```
Sub Symbol()
'
' Symbol Macro
' Macro created ⟨DATE⟩ by ⟨A NAME⟩
'
Selection.Font.Name = ''Symbol''
End Sub
```

Then type CTRL-s and close the window.

(g) You now need to assign this macro to a key sequence. Select **Tools** ⇛ **Customize** . . . .

(h) The Customize window should now appear. Select **Keyboard** . . . from the buttons at the bottom of the window.

(i) The Customize Keyboard window should now appear. Scroll down under "Categories:" until you see "Macros." Click on Macros.

(j) Next to "Categories:" should be a heading "Macros:" Scroll down under this heading until you see "Symbol." Click on it to highlight it.

(k) Click in the little box below the heading "Press new shortcut key:"

(l) Now select the key strokes that will switch to the symbol font. For example, you could press the F12 key, then the "s" key.

(m) Select **Assign** from the buttons on the right of the window. Then close the Customize Keyboard and Customize windows.

(n) From now on, typing the key strokes you assigned in Step 3l will switch to the Symbol font. That is, for instance, if you assigned F12 followed by "s," then typing these two keys in sequence will switch you to the Symbol font.

If you would like to have a macro to switch back to your standard text font (e.g., Times New Roman), then repeat the above steps, except call the new macro "Times" (or something else mnemonic) in Step 3b; type ``Times New Roman'' (more generally, ``⟨FONT NAME⟩'') instead of ``Symbol'' in Step 3f; and assign different keystrokes in Step 3l.

4. Many of the symbols you would wish to use in the Symbol font can be typed directly from the keyboard. The following table can assist you (the convention is ⟨SYMBOL⟩ = ⟨KEYBOARD CHARACTER⟩). For example, an α can be produced by switching to the Symbol font, then typing an a.

α=a	β=b	χ=c	δ=d
ε=e	ϕ=f	γ=g	η=h
ι=i	φ=j	κ=k	λ=l
μ=m	ν=n	o=o	π=p
θ=q	ρ=r	σ=s	τ=t
υ=u	ϖ=v	ω=w	ξ=x
ψ=y	ζ=z		

=	=	X=C	Δ=D
=	Φ=F	Γ=G	=
=	ϑ=J	=	Λ=L
=	=	=	Π=P
Θ=Q	=	Σ=S	=
ϒ=U	ς=V	Ω=W	Ξ=X
Ψ=Y	=		

≅=@	∃=$	⊥=^	∋='
∀="	∴=\		

5. Other common characters can be produced in the Symbol font via ALT sequences (hold down the ALT key and type the sequence of numbers on the number pad on the right edge of a standard keyboard):

≤=ALT 0163	∞=ALT 0165	↔=ALT 0171	←=ALT 0172
↑=ALT 0173	→=ALT 0174	↓=ALT 0175	±=ALT 0177
≥=ALT 0179	×=ALT 0180	∂=ALT 0182	•=ALT 0183
÷=ALT 0184	≠=ALT 0185	≡=ALT 0186	≈=ALT 0187
ℵ=ALT 0192	ℜ=ALT 0194	∅=ALT 0198	∩=ALT 0199
∪=ALT 0200	⊃=ALT 0201	⊇=ALT0202	⊄=ALT 0203
⊂=ALT 0204	⊆=ALT 0205	∈=ALT 0206	∉=ALT 0207
∇=ALT 0209	√=ALT 0214	⇔=ALT 0219	⇒=ALT 0222
∫=ALT 0242			

Alternatively, *after* switching to the Symbol font, you can select **Insert** ⇛ **Symbol** to open the Symbol window. There are two tabs, select **Symbols**. Then double click on the character you wish to insert, then click on the **Close** button at the bottom of the window.

9.5 Going from Word to PDF

If you are producing PDF via some means other than Acrobat, but you need to first produce a PostScript file, go to Step 9.5.3.

——OR——

If you are using Acrobat, then you have three options at this point: (1) Select **File ⇛ Create Adobe PDF** ... ; (2) Select **File ⇛ Print** and select Adobe Distiller as the printer; or (3) select **File ⇛ Print** and use a generic PostScript printer driver to produce a postscript file that you will then distill into PDF using Distiller. The advantage of option (1) over option (2) is it allows you to take advantage of some of PDF's high-end features (however, we expect few authors will wish to do so). The advantage of option (2) over option (1) is that it is more robust; that is, we've been able to produce high-quality PDF with option (2) when option (1) failed. Both are typically better than (3), which we include primarily for completeness and also for Word users who are *not* using Adobe Acrobat. We consider each option in turn:

9.5.1 Using Create Adobe PDF

When you install Adobe Acrobat it offers the option of making access to Acrobat an add-on to Word (the add-on is called *Adobe PDFMaker for Microsoft Word*). If you've selected that option, then you can create PDF by following these steps:

1. Select **File ⇛ Create Adobe PDF** ... . A new window will open.
2. There are four tabs: **General**, **Output**, **Bookmarks**, and **Display options**. Select **General**.
3. There is an area of the window entitled "Creation options." Make sure that the "Use Acrobat Distiller" radio button is on (has a black dot in it). If it doesn't, have the mouse point to the middle of the circle and click. A black dot should now appear.
4. Make sure the box labeled "Print via Distiller's printer" is checked. If it's not, have mouse point to the box and click. A check mark should now appear.

5. In the box labeled "Distiller settings:" make sure it says "PrintOptimized." If it doesn't, then use the pull-down menu to select "PrintOptimized."

6. You can use the other tabs to control various aspects of your PDF document. Consult the documentation that comes with Adobe Acrobat if you believe you want to make use of these options. Otherwise you can simply use the default settings.

7. Select **Create** from the buttons at the bottom of the window. You will be prompted for the name you'd like to give the PDF file and the directory into which you'd like it put.

8. A window will appear informing you of what PDFMaker is doing and its progress. This window does not always close on its own under Acrobat 4.0 (this is a bug corrected in Acrobat 4.05). If this happens, click on **Cancel** and respond (click) "Yes" to the prompt "Do you want to stop PDFMaker?"

——OR——

9.5.2 Print to Distiller

An alternative to PDFMaker, which is more robust, is to print directly to Distiller. To do this, follow these steps:

1. Select **File** ⇛ **Print**. The print window should open.

2. In the "Name:" box select "Acrobat Distiller" as the printer using the drop-down menu.

3. Select **Properties** (the button on the upper right portion of the print window). A new window should appear. It has two tabs **Page Setup** and **Advanced**. Select **Advanced**.

4. In the main part of the window will be something resembling a directory tree starting from a root called "AdobePS Acrobat Distiller Document Settings." Work your way down to "Document Options," then down to "PostScript Options," and finally down to "TrueType Font Download Option." This option should be either "Automatic" or "Outline." If it is not, then click on

"TrueType Font Download Option" and select "Automatic" or "Outline" from the new menu that appears below the "tree" portion of the window.

5. Select **OK** from the buttons at the bottom of this window.
6. In the print window select **OK**.
7. The resulting PDF file will be placed in the "PDF Output" directory under the name "Microsoft Word — ⟨FILE NAME⟩.pdf," where ⟨FILE NAME⟩ is the name of the file containing your Word document (i.e., the file ⟨FILE NAME⟩.doc).

——OR——

9.5.3 Manually Distilling PostScript

To use this method, you must have a PostScript printer driver. An appropriate printer driver can likely be found on the installation CD for your operating system or you can download one from

http://www.adobe.com/products/postscript/main.html .

Follow the instructions for setting up a new printer under your operating system and set this new "printer" to print to file.

The steps for producing PDF are, then,

1. Select **File** ⇛ **Print**. The print window should open.
2. In the "Name:" box select "⟨PS PRINTER⟩," where ⟨PS PRINTER⟩ is the name given to the PostScript "printer" that prints to file.
3. Select **OK** from the buttons at the bottom of the print window.
4. You will be prompted for a name for the resulting PostScript file and a directory into which to put it. Provide this information. For concreteness, suppose you call this file ⟨foo.ps⟩.
5. Close or minimize the Word window and open Adobe Distiller. (Alternatively, use another method to go from PostScript to PDF, such as GhostScript.)

6. In Distiller, select **File** ⇛ **Open** (alternatively, CTRL-o). An open-file window will appear. Go to the directory where you've put ⟨foo.ps⟩ and select ⟨foo.ps⟩.
7. Distiller will then run and produce ⟨foo.pdf⟩.

10 Additional Information for WordPerfect Users

If you created the original file in Corel WordPerfect 9 or from within Corel's Office 2000 and the file contains WordPerfect TrueType fonts only, create the PDF file using WordPerfect's Publish To PDF command. For instructions, refer to the WordPerfect documentation.

If you producing PDF in a method that uses Adobe's Distiller, be aware that you may encounter problems embedding WordPerfect fonts. The work around is to download new fonts from Corel and install them. To do this, go to the Corel website and download the latest service pack. The file you want is called WPFonts.exe. Remove the old versions of the fonts before you install the following new ones:

- WPCE08N_.TTF WP Greek Century
- WPCO01NA.TTF WP MultinationalA Courier
- WPCO01NB.TTF WP MultinationalB Courier
- WPCO03N_.TTF WP BoxDrawing
- WPCO08N_.TTF WP Greek Courier
- WPDV09N_.TTF WP Hebrew David
- WPHV01NA.TTF WP MultinationalA Helve
- WPHV01NB.TTF WP MultinationalB Helve
- WPHV02N_.TTF WP Phonetic

- WPHV04N_.TTF WP TypographicSymbols
- WPHV05NA.TTF WP IconicSymbolsA
- WPHV05NB.TTF WP IconicSymbolsB
- WPHV06NA.TTF WP MathB
- WPHV06NB.TTF WP MathB
- WPHV07NA.TTF WP MathextendedA
- WPHV07NB.TTF WP MathextendedB
- WPHV08N_.TTF WP Greek Helve
- WPHV11N_.TTF WP Japanese

11 Check Your PDF File

You should check your PDF file to make sure that everything has worked properly. To do so, open your file in Acrobat. Page through your PDF file and visually make sure it looks right. You can almost guarantee that if it doesn't look right on the machine on which it was created, it won't look right on anybody else's machine (the converse, unfortunately, doesn't hold).

To more formally check your PDF file follow these steps:

1. Check fonts
   (a) Select **File** ⇛ **Document Info** ⇛ **Fonts** . . . . This will open the "Font Info" window.
   (b) In the "Font Info" window, select **List All Fonts** . . . from the buttons at the bottom of this window.
   (c) A table of fonts should appear in the Font Info window.

(d) *If no table appears, then none of your fonts have been embedded and all characters have been bitmapped. Your document will* not *view well on the screen and it may not print well either.* You need to troubleshoot fonts (go here—page 24).

(e) If a table appears, look under the "Type" heading to make sure that all fonts are either Type1 or TrueType fonts. If they are *not*, then you need to troubleshoot fonts (go here—page 24).

(f) Look at the column "Used Font." With the possible exception of Times, Arial/Helvetica, and Courier, it should say "Embedded Subset" in this column (Times, Arial/Helvetica, and Courier are sometimes excepted because everyone who has the Adobe PDF reader has access to these fonts). If it does *not* say "Embedded Subset," try to force embedding (see page 9). If this is unsuccessful, then you need to troubleshoot fonts (go here—page 24).

(g) Select **OK** to close the Font Info window.

2. A second check of fonts is conducted as follows:

(a) Select **View** ⇛ **Use Local Fonts**. This command has a check mark by it when Acrobat is using local fonts and no check mark when it is ignoring local fonts. You want the check mark to disappear.

(b) Now look over the document again, this is how it will look to someone who doesn't have the same set of fonts as you. In particular, it will trigger font substitution if there are *un*embedded fonts. If a font cannot be substituted, the text formatted with that font appears as bullets, and Acrobat displays an error message. If the text in your PDF file appears as bullets when "Use Local Fonts" is off, you need to troubleshoot fonts (go here—page 24).

12 Troubleshooting

In addition to the troubleshooting advice given below, you may also wish to consult Adobe's troubleshooting information:

http://www.adobe.com/support/techdocs/topissuesac.htm .

12.1 When viewed on screen, there are missing characters

This likely indicates a font encoding problem:

- The character doesn't exist in the Type 1 version of the font being used. For example, depending on your set-up and other factors, some TEX characters might be available as bitmapped (*.pk) fonts, but not be in the corresponding Type 1 version of the font; *or*
- Acrobat has made a font substitution and the substitute font does not contain that character.

Solution: If you're using an unusual font, switch to a more common font, such as Times Roman or Ariel, and see whether the problem persists. If it does or changing fonts is not an option, then use a different character (e.g., if $\Re$ is unavailable use **R**). If you're using Adobe's generic PostScript driver under Windows, also see Section 12.7.

12.2 When viewed on screen, some characters have been replaced with question marks (?)

This can occur when you use PDFWriter and you have unusual characters (e.g., Δ or $^3/_8$).

Solution: Try using Distiller for the PDF conversion. If this doesn't work, see Section 12.1.

12.3 When viewed on screen, some characters have been replaced with bullets (•)

This indicates that Acrobat is *substituting* fonts and, in the substitute font, the character in question doesn't exist.

Solution: Make sure your fonts are *embedded* to prevent Acrobat from engaging in font substitution (see page 9). If either embedding doesn't solve the problem or embedding isn't feasible, see Section 12.1.

12.4 When viewed on screen, the text has a jagged appearance

This very likely indicates that your text has been bitmapped. To be sure, follow the procedures on page 23 in Section 11. If this is the case, the **solution** is to force the use of Type 1 fonts. How to do this depends on the wordprocessor you're using and the method you're using to generate PDF. You may also wish to consult step 2, Section 8, or Section 12.7.

If the fonts haven't been bitmapped (they're Type 1 or TrueType), then it could be that the quality of the fonts is poor (they're low-resolution fonts). In this case, change fonts to higher-quality fonts. It could also represent a problem with how you've configured the Acrobat reader. **Solution:** go to the File menu within Acrobat and choose General Preferences. Make sure the box next to "Smooth Text and Images" is checked. **Note:** If you're using Ghostscript to view PDF files, jagged text can occur even when the PDF file views fine under Adobe's Acrobat. To test, open the PDF file with Acrobat (to acquire a *free* copy of Acrobat reader, go to

http://www.adobe.com/products/acrobat/readstep.html).

12.5 PDF file prints poorly

This could be due to a number of factors:

1. A poor-quality PDF file. Does the file also *display* poorly on the screen? If so, follow the various troubleshooting tips to correct its on-screen presentation.

2. The PDF file has been produced to be "screen optimized." **Solution:** Change the settings in Distiller to print optimized.

3. A problem between Acrobat and your printer driver. If your PDF file appears correctly on screen and produced under the "print optimized" option, then the most likely culprit is some bug in the interface between the Acrobat reader and your printer driver. One way to better diagnosis this is to try printing the file on a *different* printer. If the problem disappears, then an interface bug seems very likely. In this case, the only possible solution is to make sure that you have the most recent

versions of both Acrobat reader and your printer driver (the bug may have been fixed). The most recent version of the reader is available from

http://www.adobe.com/products/acrobat/readstep.html ;

check your printer's manufacturer's web site to see if a more recent version of the printer driver is available.

If the problem persists when printing to multiple printers, then this may indicate some bug involving Acrobat or the file itself. If installing the most recent version of Acrobat doesn't cure the problem, but your PDF was constructed (i) using software other than Adobe's; (ii) from a file containing unusual formatting; or (iii) containing specific Acrobat commands, then you should try reconstructing the PDF file changing one of these conditions.

12.6 Distiller flushes the job or crashes

If Distiller refuses to produce a PDF file from PostScript input or crashes, then this indicates a problem with the PostScript input. If Distiller didn't crash, the on-screen messages it gives will give you some clue as to the problem with the PostScript input.

Solution: See if you can correct the problems listed in Distiller's error messages. If you can't, try either a different method of generating the PostScript file or make changes to the original wordprocessing document (the former if the document's formatting, etc., is straightforward, the latter if the document's formatting is complicated or you've tried to make use of some of PDF's advanced features).

12.7 Problems and you're using Adobe's generic PostScript driver to make PostScript for Distilling

If you're using TrueType fonts under Windows and your using Adobe's generic PostScript driver to produce PostScript for distilling (i.e., the procedure outline in Section 7), then make sure you've set the printer driver to use outline versions of the fonts (see the discussion at the end of Section 7). You may

also wish to consult:

http://www.adobe.com/support/techdocs/19df2.htm .

12.8 Problems and you're using TEX or LATEX

Check out the discussion in Section 8. Note that many ways of translating TEX and LATEX output into PDF will result in the use of Type 3 (bitmapped) fonts, so pay attention to how this can be avoided. You may also wish to consult Chapter 2 of *The LATEX Web Companion* by Michel Goossens and Sebastian Rahtz (Addison-Wesley: Reading, MA, 1999); or

http://www.adobe.com/support/techdocs/543e.htm .

12.9 Problems and you're using WordPerfect

Check out the discussion in Section 10.

12.10 Acrobat won't open or crashes trying to open a PDF file created using third-party software

This can happen. The likely problem is that the third-party software has inadvertently put some bad PDF code into the PDF file.

Solution: Choose a different method for producing the PDF file. Given how ubiquitous Adobe's Acrobat reader is, all PDF files in the bepress.com system have to work with it.

12.11 What to do when nothing else works?

If you're an author producing a paper for a bepress.com journal, send an e-mail to `pdfproblems@bepress.com` detailing the nature of the problem and the steps you've taken to resolve it. You may also wish to

consult the web sites listed below. You may also wish to request help from the Usenet news group `comp.text.pdf`.

13 Additional References

General Information: The best guide to producing PDF and using it on the web is *Web Publishing with Acrobat/PDF* by Thomas Merz (Springer-Verlag: Berlin, 1998).

Web sites: The PlanetPDF web site, URL

`http://www.planetpdf.com/` ,

has lots of information and links concerning PDF. For **troubleshooting**, the Adobe web site,

`http://www.adobe.com/support/techdocs/topissuesac.htm` ,

has lots of information

TEX/LATEX: The best source of information on producing PDF files from TEX or LATEX is Chapter 2 of *The LATEX Web Companion* by Michel Goossens and Sebastian Rahtz (Addison-Wesley: Reading, MA, 1999).