

Formatting Instructions for Authors Using L^AT_EX

AAAI Press

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Abstract

AAAI creates proceedings, working notes, and technical reports directly from electronic source furnished by the authors. To ensure that all papers in the publication have a uniform appearance, authors must adhere to the following instructions.

Congratulations on having a paper selected for inclusion in an AAAI Press proceedings or technical report! This document details the requirements necessary to get your accepted paper published using L^AT_EX. If you are using Microsoft Word, instructions are provided in a different document. If you want to use some other formatting software, you must obtain permission from AAAI Press first.

The instructions herein are provided as a general guide for experienced L^AT_EX users who would like to use that software to format their paper for an AAAI Press publication or report. If you are not an experienced L^AT_EX user, do not use it to format your paper. AAAI cannot provide you with support and the accompanying style files are **not** guaranteed to work. If the results you obtain are not in accordance with the specifications you received, you must correct your source file to achieve the correct result.

These instructions are generic. Consequently, they do not include specific dates, page charges, and so forth. Please consult your specific written conference instructions for details regarding your submission. Please review the entire document for specific instructions that might apply to your particular situation. All authors must comply with the following:

- You must use the latest AAAI Press L^AT_EX macro.
- Download the author kit.
- Complete, sign, and return by the deadline the AAAI copyright form (proceedings authors) or distribution license (technical report authors).
- Read and format your paper source and PDF according to the formatting instructions for authors.
- Submit your electronic files and abstract using our electronic submission form **on time**.

- Submit your copyright form, and any required page or formatting charges to AAAI Press so that they are received by the deadline.
- Check every page of your paper before submitting it.

Copyright

All papers submitted for publication by AAAI Press must be accompanied by a valid signed copyright form or, in the case of technical reports, by a valid signed permission to distribute form. There are no exceptions to this requirement. You must send us the original version of this form. However, to meet the deadline, you may fax (1-650-321-4457) or scan and e-mail the form (pubforms15@aaai.org) to AAAI by the submission deadline, and then mail the original via postal mail to the AAAI office. **If you fail to send in a signed copyright or permission form, your paper will not be published.** You will find PDF versions of the AAAI copyright and permission to distribute forms in the author kit.

Formatting Requirements in Brief

We need source and PDF files that can be used in a variety of ways and can be output on a variety of devices. AAAI imposes some requirements on your source and PDF files that must be followed. Most of these requirements are based on our efforts to standardize conference manuscript properties and layout. These requirements are as follows, and all papers submitted to AAAI for publication must comply:

- Your .tex file must compile in PDFL^AT_EX — **no .ps or .eps figure files.**
- All fonts must be embedded in the PDF file — **this includes your figures.**
- Modifications to the style sheet (or your document) in an effort to avoid extra page charges are NOT allowed.
- No type 3 fonts may be used (even in illustrations).
- Your title must follow US capitalization rules.
- L^AT_EX documents must use the Times or Nimbus font package (do not use Computer Modern for the text of your paper).
- No L^AT_EX 209 documents may be used or submitted.

- Fonts that require non-English language support (CID and Identity-H) must be converted to outlines or removed from the document (even if they are in a graphics file embedded in the document).
- Two-column format in AAAI style is required for all papers.
- The paper size for final submission must be US letter. No exceptions.
- The source file must exactly match the PDF.
- The document margins must be as specified in the formatting instructions.
- The number of pages and the file size must be as specified for your event.
- No document may be password protected.
- Neither the PDFs nor the source may contain any embedded links or bookmarks.
- Your source and PDF must not have any page numbers, footers, or headers.
- Your PDF must be compatible with Acrobat 5 or higher.
- Your \LaTeX source file (excluding references) must consist of a **single** file (use of the “input” command is not allowed).
- Your graphics must be sized appropriately outside of \LaTeX (do not use the “clip” command) .

If you do not follow the above requirements, it is likely that we will be unable to publish your paper.

What Files to Submit

You must submit the following items to ensure that your paper is published:

- A fully-compliant PDF file.
- Your \LaTeX source file submitted as a **single** .tex file (do not use the “input” command to include sections of your paper — every section must be in the single source file). The only exception is the bibliography, which you may include separately. Your source must compile on our system, which includes the standard \LaTeX support files.
- All your graphics files.
- The \LaTeX -generated files (e.g. .aux and .bib file, etc.) for your compiled source.
- All the nonstandard style files (ones not commonly found in standard \LaTeX installations) used in your document (including, for example, old algorithm style files). If in doubt, include it.

Your \LaTeX source will be reviewed and recompiled on our system (if it does not compile, you may incur late fees). **Do not submit your source in multiple text files.** Your single \LaTeX source file must include all your text, your bibliography (formatted using aaai.bst), and any custom macros. Accompanying this source file, you must also supply any nonstandard (or older) referenced style files and all your referenced graphics files.

Your files should work without any supporting files (other than the program itself) on any computer with a standard \LaTeX distribution. Place your PDF and source files in a single tar, zipped, gzipped, stuffed, or compressed archive. Name your source file with your last (family) name.

Do not send files that are not actually used in the paper. We don’t want you to send us any files not needed for compiling your paper, including, for example, this instructions file, unused graphics files, and so forth. A shell script (created by an AAAL member — it might not work without modification on your system) that might help you create the \LaTeX source package is included in the Author Kit.

Using \LaTeX to Format Your Paper

The latest version of the AAAL style file is available on AAAL’s website. Download this file and place it in a file named “aaai.sty” in the \TeX search path. Placing it in the same directory as the paper should also work. You must download the latest version of the complete author kit so that you will have the latest instruction set.

Document Preamble

In the \LaTeX source for your paper, you **must** place the following lines as shown in the example in this subsection. This command set-up is for three authors. Add or subtract author and address lines as necessary, and uncomment the portions that apply to you. In most instances, this is all you need to do to format your paper in the Times font. The helvet package will cause Helvetica to be used for sans serif, and the courier package will cause Courier to be used for the type-writer font. These files are part of the PSNFSS2e package, which is freely available from many Internet sites (and is often part of a standard installation).

Leave the setcounter for section number depth commented out and set at 0 unless you want to add section numbers to your paper. If you do add section numbers, you must uncomment this line and change the number to 1 (for section numbers), or 2 (for section and subsection numbers). The style file will not work properly with numbering of subsections, so do not use a number higher than 2.

```
\documentclass[letterpaper]article
% Required Packages
\usepackage{aaai}
\usepackage{times}
\usepackage{helvet}
\usepackage{courier}
\setlength{\pdfpagewidth}{8.5in}
\setlength{\pdfpageheight}{11in}
%% % % % % % % % %
% PDFINFO for PDF $\LaTeX$ 
% Uncomment and complete the following for metadata
% (your paper must compile with PDF $\LaTeX$ )
\pdfinfo{
/Title (Input Your Paper Title Here)
/Author (John Doe, Jane Doe)
/Keywords (Input your paper’s keywords in this optional
area)
}
```

```

%%%%
% Section Numbers
% Uncomment if you want to use section numbers
% and change the 0 to a 1 or 2
% \setcounter{secnumdepth}{0}
%%%%
% Title, Author, and Address Information
\title{Title}
\author{Author 1 \and Author 2}
Address line
Address line
\And
Author 3
Address line
Address line}
%%%%
% Body of Paper Begins
\begin{document}
\maketitle
...
%%%%
% References and End of Paper
\bibliography{Bibliography-File}
\bibliographystyle{aaai}
\end{document}

```

Inserting Document Metadata with L^AT_EX

PDF files contain document summary information that enables us to create an Acrobat index (pdx) file, and also allows search engines to locate and present your paper more accurately. **Document Metadata for Author and Title are REQUIRED.**

If your paper includes illustrations that are not compatible with PDF_T_EX (such as .eps or .ps documents), you will need to convert them. The epstopdf package will usually work for eps files. You will need to convert your ps files to PDF however.

Important: Do not include *any* L^AT_EX code or nonascii characters (including accented characters) in the metadata. The data in the metadata must be completely plain ascii. It may not include slashes, accents, linebreaks, unicode, or any L^AT_EX commands. Type the title exactly as it appears on the paper (minus all formatting). Input the author names in the order in which they appear on the paper (minus all accents), separating each author by a comma. You may also include keywords in the Keywords field.

Preparing Your Paper

After the preamble above, you should prepare your paper as follows:

```

\begin{document}
\maketitle
...
\bibliography{Bibliography-File}
\bibliographystyle{aaai}
\end{document}

```

Incompatible Packages

The following packages are incompatible with aaai.sty and/or aaai.bst and must not be used (this list is not exhaustive — there are others as well):

- hyperref
- natbib
- geometry
- titlesec
- layout
- caption
- titlesec
- savetrees
- T1 fontenc package (install the CM super fonts package instead)

Illegal Commands

The following commands may not be used in your paper:

- \input
- \vspace (when used before or after a section or subsection)
- \addtolength
- \columnsep
- \top margin (or text height or addsidemargin or even side margin)
- trim or clip (used to crop figures)

Paper Size, Margins, and Column Width

Papers must be formatted to print in two-column format on 8.5 x 11 inch US letter-sized paper. The margins must be exactly as follows:

- Top margin: .75 inches
- Left margin: .75 inches
- Right margin: .75 inches
- Bottom margin: 1.25 inches

The default paper size in most installations of L^AT_EX is A4. However, because we require that your electronic paper be formatted in US letter size, you will need to alter the default for this paper to US letter size. Assuming you are using the 2e version of L^AT_EX, you can do this by including the [letterpaper] option at the beginning of your file: \documentclass[letterpaper]article.

This command is usually sufficient to change the format. Sometimes, however, it may not work. Use PDF_L_AT_EX and include \setlength{\pdfpagewidth}{8.5in} \setlength{\pdfpageheight}{11in} in your preamble.

Do not use the Geometry package to alter the page size. Use of this style file alters aaai.sty and will result in your paper being rejected.

Column Width and Margins. To ensure maximum readability, your paper must include two columns. Each column should be 3.3 inches wide (slightly more than 3.25 inches), with a .375 inch (.952 cm) gutter of white space between the two columns. The `aaai.sty` file will automatically create these columns for you.

Overlength Papers

If your paper is too long, turn on `\frenchspacing`, which will reduce the space after periods. Next, shrink the size of your graphics. Use `\centering` instead of `\begin{center}` in your figure environment. If these two methods don't work, you may minimally use the following. For floats (tables and figures), you may minimally reduce `\floatsep`, `\textfloatsep`, `\abovecaptionskip`, and `\belowcaptionskip`. For mathematical environments, you may minimally reduce `\abovedisplayskip`, `\belowdisplayskip`, and `\arraycolsep`. You may also alter the size of your bibliography by inserting `\fontsize{9.5pt}{10.5pt}` `\selectfont` right before the bibliography.

Commands that alter page layout are forbidden. These include `\columnsep`, `\topmargin`, `\topskip`, `\textheight`, `\textwidth`, `\oddsidemargin`, and `\evensidemargin` (this list is not exhaustive). If you alter page layout, you will be required to pay the page fee *plus* a reformatting fee. Other commands that are questionable and may cause your paper to be rejected include `\parindent`, and `\parskip`. Commands that alter the space between sections are also questionable. The title sec package is not allowed. Regardless of the above, if your paper is obviously “squeezed” it is not going to be accepted. Before using every trick you know to make your paper a certain length, try reducing the size of your graphics or cutting text instead or (if allowed) paying the extra page charge. It will be cheaper in the long run.

Figures

Your paper must compile in PDF \LaTeX . Consequently, all your figures must be .jpg, .png, or .pdf. You may not use the .gif (the resolution is too low), .ps, or .eps file format for your figures.

When you include your figures, you must crop them **outside** of \LaTeX . The command `\includegraphics*[clip=true, viewport 0 0 10 10]...` might result in a PDF that looks great, but the image is **not really cropped**. The full image can reappear when page numbers are applied or color space is standardized.

Type Font and Size

Your paper must be formatted in Times Roman or Nimbus. We will not accept papers formatted using Computer Modern or Palatino or some other font as the text or heading typeface. Sans serif, when used, should be Courier. Use Symbol or Lucida or Computer Modern for *mathematics only*.

Do not use type 3 fonts for any portion of your paper, including graphics. Type 3 bitmapped fonts are designed for fixed resolution printers. Most print at 300 dpi even if the printer resolution is 1200 dpi or higher. They also often

cause high resolution imagesetter devices and our PDF indexing software to crash. Consequently, AAAI will not accept electronic files containing obsolete type 3 fonts. Files containing those fonts (even in graphics) will be rejected.

Fortunately, there are effective workarounds that will prevent your file from embedding type 3 bitmapped fonts. The easiest workaround is to use the required times, helvet, and courier packages with \LaTeX 2_ε. (Note that papers formatted in this way will still use Computer Modern for the mathematics. To make the math look good, you'll either have to use Symbol or Lucida, or you will need to install type 1 Computer Modern fonts — for more on these fonts, see the section “Obtaining Type 1 Computer Modern.”)

If you are unsure if your paper contains type 3 fonts, view the PDF in Acrobat Reader. The Properties/Fonts window will display the font name, font type, and encoding properties of all the fonts in the document. If you are unsure if your graphics contain type 3 fonts (and they are PostScript or encapsulated PostScript documents), create PDF versions of them, and consult the properties window in Acrobat Reader.

The default size for your type should be ten-point with twelve-point leading (line spacing). Start all pages (except the first) directly under the top margin. (See the next section for instructions on formatting the title page.) Indent ten points when beginning a new paragraph, unless the paragraph begins directly below a heading or subheading.

Obtaining Type 1 Computer Modern for \LaTeX . If you use Computer Modern for the mathematics in your paper (you cannot use it for the text) you may need to download type 1 Computer fonts. They are available without charge from the American Mathematical Society: <http://www.ams.org/tex/type1-fonts.html>.

Title and Authors

Your title must appear in mixed case (nouns, pronouns, and verbs are capitalized) near the top of the first page, centered over both columns in sixteen-point bold type (twenty-four point leading). This style is called “mixed case.” Author's names should appear below the title of the paper, centered in twelve-point type (with fifteen point leading), along with affiliation(s) and complete address(es) (including electronic mail address if available) in nine-point roman type (the twelve point leading). (If the title is long, or you have many authors, you may reduce the specified point sizes by up to two points.) You should begin the two-column format when you come to the abstract.

Formatting Author Information Author information can be set in a number of different styles, depending on the number of authors and the number of affiliations you need to display. For several authors from the same institution, use `\and`:

```
\author{Author 1 \and ... \and Author n}\  
Address line \\\ ... \\\ Address line}
```

If the names do not fit well on one line use:

```
\author{Author 1}\  
{\bf Author 2}\ ... \{\bf Author n}\  
Address line \\\ ... \\\ Address line}
```

For authors from different institutions, use `\And`:

```
\author{Author 1\ Address line \ \ ... \ Address line  
\And ... \And Author n\ \  
Address line\ \ ... \ Address line}
```

To start a separate “row” of authors, use `\AND`:

```
\author{Author 1\ Address line \ \ ... \ Address line\ \  
\AND  
Author 2 \ Address line \ \ ... \ Address line\ \  
\And  
Author 3 \ Address line \ \ ... \ Address line\ \  
}
```

If the title and author information does not fit in the area allocated, place `\setlength\titlebox{height}` after the `\documentclass` line where `{height}` is something like 2.5in.

LaTeX Copyright Notice

The copyright notice automatically appears if you use `aaai.sty`. If you are creating a technical report, it is not necessary to include this notice. You may disable the copyright line using the `\nocopyright` command. To change the entire text of the copyright slug, use: `\copyrighttext {text}`. Either of these must appear before `\maketitle`. Please be advised, however, that *if you disable or change the copyright line and transfer of copyright is required, your paper will not be published*.

Credits

Any credits to a sponsoring agency should appear in the acknowledgments section, unless the agency requires different placement. If it is necessary to include this information on the front page, use `\thanks` in either the `\author` or `\title` commands. For example:

```
\title{Very Important Results in AI\thanks{This work is sup-  
ported by everybody.}}
```

Multiple `\thanks` commands can be given. Each will result in a separate footnote indication in the author or title with the corresponding text at the bottom of the first column of the document. Note that the `\thanks` command is fragile. You will need to use `\protect`.

Please do not include `\pubnote` commands in your document.

Abstract

The abstract must be placed at the beginning of the first column, indented ten points from the left and right margins. The title Abstract should appear in ten-point bold type, centered above the body of the abstract. The abstract should be set in nine-point type with ten-point leading. This concise, one-paragraph summary should describe the general thesis and conclusion of your paper. A reader should be able to learn the purpose of the paper and the reason for its importance from the abstract. The abstract should be no more than two hundred words in length. (Authors who are submitting short one- or two-page extended extracts should provide a short abstract of only a sentence or so.) **Do not include references in your abstract!**

Page Numbers

Do not **ever** print any page numbers on your paper.

Text

The main body of the paper must be formatted in ten-point with twelve-point leading (line spacing).

Citations

Citations within the text should include the author’s last name and year, for example (Newell 1980). Append lower-case letters to the year in cases of ambiguity. Multiple authors should be treated as follows: (Feigenbaum and Englemore 1988) or (Ford, Hayes, and Glymour 1992). In the case of four or more authors, list only the first author, followed by et al. (Ford et al. 1997).

Extracts

Long quotations and extracts should be indented ten points from the left and right margins.

This is an example of an extract or quotation. Note the indent on both sides. Quotation marks are not necessary if you offset the text in a block like this, and properly identify and cite the quotation in the text.

Footnotes

Avoid footnotes as much as possible; they interrupt the reading of the text. When essential, they should be consecutively numbered throughout with superscript Arabic numbers. Footnotes should appear at the bottom of the page, separated from the text by a blank line space and a thin, half-point rule.

Headings and Sections

When necessary, headings should be used to separate major sections of your paper. Remember, you are writing a short paper, not a lengthy book! An overabundance of headings will tend to make your paper look more like an outline than a paper.

First-level heads should be twelve-point Times Roman bold type, mixed case (initial capitals followed by lower case on all words except articles, conjunctions, and prepositions, which should appear entirely in lower case), with fifteen-point leading, centered, with one blank line preceding them and three additional points of leading following them. Second-level headings should be eleven-point Times Roman bold type, mixed case, with thirteen-point leading, flush left, with one blank line preceding them and three additional points of leading following them. Do not skip a line between paragraphs. Third-level headings should be run in with the text, ten-point Times Roman bold type, mixed case, with twelve-point leading, flush left, with six points of additional space preceding them and no additional points of leading following them.

Section Numbers The use of section numbers in AAAI Press papers is optional. To use section numbers in LaTeX, uncomment the `setcounter` line in your document preamble and change the 0 to a 1 or 2. Section numbers should not be used in short poster papers.

Section Headings. Sections should be arranged and headed as follows:

Acknowledgments. The acknowledgments section, if included, appears after the main body of text and is headed “Acknowledgments.” This section includes acknowledgments of help from associates and colleagues, credits to sponsoring agencies, financial support, and permission to publish. Please acknowledge other contributors, grant support, and so forth, in this section. Do not put acknowledgments in a footnote on the first page. If your grant agency requires acknowledgment of the grant on page 1, limit the footnote to the required statement, and put the remaining acknowledgments at the back. Please try to limit acknowledgments to no more than three sentences.

Appendices. Any appendices follow the acknowledgments, if included, or after the main body of text if no acknowledgments appear.

References The references section should be labeled “References” and should appear at the very end of the paper (don’t end the paper with references, and then put a figure by itself on the last page). A sample list of references is given later on in these instructions. Please use a consistent format for references. Poorly prepared or sloppy references reflect badly on the quality of your paper and your research. Please prepare complete and accurate citations.

Illustrations and Figures

Figures, drawings, tables, and photographs should be placed throughout the paper near the place where they are first discussed. Do not group them together at the end of the paper. If placed at the top or bottom of the paper, illustrations may run across both columns. Figures must not invade the top, bottom, or side margin areas. Figures must be inserted using the `\usepackage{graphicx}`. Number figures sequentially, for example, figure 1, and so on.

The illustration number and caption should appear under the illustration. Labels, and other text in illustrations must be at least nine-point type.

Low-Resolution Bitmaps. You may not use low-resolution (such as 72 dpi) screen-dumps and GIF files—these files contain so few pixels that they are always blurry, and illegible when printed. If they are color, they will become an indecipherable mess when converted to black and white. This is always the case with gif files, which should never be used. The resolution of screen dumps can be increased by reducing the print size of the original file while retaining the same number of pixels. You can also enlarge files by manipulating them in software such as PhotoShop. Your figures should be a minimum of 266 dpi when incorporated into your document.

L^AT_EX Overflow. L^AT_EX users please beware: L^AT_EX will sometimes put portions of the figure or table or an equation in the margin. If this happens, you need to scale the figure or table down, or reformat the equation. Check your log file! You must fix any overflow into the margin (that means no overfull boxes in L^AT_EX). If you don’t, the overflow text will

simply be eliminated. **Nothing is permitted to intrude into the margins.**

Using Color. Your paper will be printed in black and white and grayscale. Consequently, because conversion to grayscale can cause undesirable effects (red changes to black, yellow can disappear, and so forth), we strongly suggest you avoid placing color figures in your document. Of course, any reference to color will be indecipherable to your reader.

Drawings. We suggest you use computer drawing software (such as Adobe Illustrator or, (if unavoidable), the drawing tools in Microsoft Word) to create your illustrations. Do not use Microsoft Publisher. These illustrations will look best if all line widths are uniform (half- to two-point in size), and you do not create labels over shaded areas. Shading should be 133 lines per inch if possible. Use Times Roman or Helvetica for all figure call-outs. **Do not use hairline width lines** — be sure that the stroke width of all lines is at least .5 pt. Zero point lines will print on a laser printer, but will completely disappear on the high-resolution devices used by our printers.

Photographs and Images. Photographs and other images should be in grayscale (color photographs will not reproduce well; for example, red tones will reproduce as black, yellow may turn to white, and so forth) and set to a minimum of 266 dpi. Do not prescreen images.

Resizing Graphics. Resize your graphics **before** you include them with L^AT_EX. You may **not** use trim or clip options as part of your `\includegraphics` command. Resize the media box of your PDF using a graphics program instead.

Fonts in Your Illustrations You must embed all fonts in your graphics before including them in your L^AT_EX document.

References

The `aaai.sty` file includes a set of definitions for use in formatting references with BibT_EX. These definitions make the bibliography style fairly close to the one specified below. To use these definitions, you also need the BibT_EX style file “`aaai.bst`,” available in the author kit on the AAAI web site. Then, at the end of your paper but before `\enddocument`, you need to put the following lines:

```
\bibliographystyle{aaai} \bibliography{bibfile1,bibfile2,...}
```

The list of files in the `\bibliography` command should be the names of your BibT_EX source files (that is, the .bib files referenced in your paper).

The following commands are available for your use in citing references:

`\cite`: Cites the given reference(s) with a full citation. This appears as “(Author Year)” for one reference, or “(Author Year; Author Year)” for multiple references.

`\shortcite`: Cites the given reference(s) with just the year. This appears as “(Year)” for one reference, or “(Year; Year)” for multiple references.

`\citeauthor`: Cites the given reference(s) with just the author

name(s) and no parentheses.

\citeyear: Cites the given reference(s) with just the date(s) and no parentheses.

Warning: The aaai.sty file is incompatible with the hyperref and natbib packages. If you use either, your references will be garbled and your paper will not be published.

Formatted bibliographies should look like the following examples.

Book with Multiple Authors

Engelmore, R., and Morgan, A. eds. 1986. *Blackboard Systems*. Reading, Mass.: Addison-Wesley.

Journal Article

Robinson, A. L. 1980a. New Ways to Make Microcircuits Smaller. *Science* 208: 1019–1026.

Magazine Article

Hasling, D. W.; Clancey, W. J.; and Rennels, G. R. 1983. Strategic Explanations in Consultation. *The International Journal of Man-Machine Studies* 20(1): 3–19.

Proceedings Paper Published by a Society

Clancey, W. J. 1983b. Communication, Simulation, and Intelligent Agents: Implications of Personal Intelligent Machines for Medical Education. In *Proceedings of the Eighth International Joint Conference on Artificial Intelligence*, 556–560. Menlo Park, Calif.: International Joint Conferences on Artificial Intelligence, Inc.

Proceedings Paper Published by a Press or Publisher

Clancey, W. J. 1984. Classification Problem Solving. In *Proceedings of the Fourth National Conference on Artificial Intelligence*, 49–54. Menlo Park, Calif.: AAAI Press.

University Technical Report

Rice, J. 1986. Poligon: A System for Parallel Problem Solving, Technical Report, KSL-86-19, Dept. of Computer Science, Stanford Univ.

Dissertation or Thesis

Clancey, W. J. 1979b. Transfer of Rule-Based Expertise through a Tutorial Dialogue. Ph.D. diss., Dept. of Computer Science, Stanford Univ., Stanford, Calif.

Forthcoming Publication

Clancey, W. J. 1986a. The Engineering of Qualitative Models. *Forthcoming*.

Producing Reliable PDF Documents with L^AT_EX

Generally speaking, PDF files are platform independent and accessible to everyone. When creating a paper for a proceedings or publication in which many PDF documents must be merged and then printed on high-resolution PostScript RIPs, several requirements must be met that are not normally of concern. Thus to ensure that your paper will look like it does when printed on your own machine, you must take several precautions:

- Use type 1 fonts (not type 3 fonts)
- Use only standard Times, Nimbus, and CMR font packages (not fonts like F3 or fonts with tildes in the names or fonts—other than Computer Modern—that are created for

specific point sizes, like Times~19) or fonts with strange combinations of numbers and letters

- Embed all fonts when producing the PDF
- Do not use the [T1]fontenc package (install the CM super fonts package instead)

Creating Output Using PDFL^AT_EX Is Required

By using the PDFL^AT_EX program instead of straight L^AT_EX or T_EX, you will probably avoid the type 3 font problem altogether (unless you use a package that calls for metafont). PDFL^AT_EX enables you to create a PDF document directly from L^AT_EX source. The one requirement of this software is that all your graphics and images must be available in a format that PDFL^AT_EX understands (normally PDF).

PDFL^AT_EX's default is to create documents with type 1 fonts. If you find that it is not doing so in your case, it is likely that one or more fonts are missing from your system or are not in a path that is known to PDFL^AT_EX.

dvipdf Script Scripts such as dvipdf which ostensibly bypass the Postscript intermediary should not be used since they generally do not instruct dvips to use the config.pdf file.

dvipdfm Do not use this dvi-PDF conversion package if your document contains graphics (and we recommend you avoid it even if your document does not contain graphics).

Ghostscript

L^AT_EX users should not use GhostScript to create their PDFs.

Graphics

If you are still finding type 3 fonts in your PDF file, look at your graphics! L^AT_EX users should check all their imported graphics files as well for font problems.

Proofreading Your PDF

Please check all the pages of your PDF file. Is the page size A4? Are there any type 3, Identity-H, or CID fonts? Are all the fonts embedded? Are there any areas where equations or figures run into the margins? Did you include all your figures? Did you follow mixed case capitalization rules for your title? Did you include a copyright notice? Do any of the pages scroll slowly (because the graphics draw slowly on the page)? Are URLs underlined and in color? You will need to fix these common errors before submitting your file.

Improperly Formatted Files

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Experiments

We assess the performance of the Base System on labyrinth environments. The robot is positioned in a starting location and it stochastically navigates the environment. We split the experiments into two cases. The first is the case of timing, where $\sum = \{\sigma\}$ and the second is with multiple observations. For timing, the goal is to make predictions about how long the agent will survive the environment. One can also ask conditional queries such as how long the agent should expect to survive given that x seconds have elapsed. For multiple observations we place the agent in the environment, let it roam for a fixed time length and then remove the agent. The goal for the multiple observation labyrinth will be to make predictions about seeing observation sequences. In both cases, we analyse the performance for PSRs of different model sizes with a fixed observation set.

Double Loop Timing

For timing, we start by considering a double loop environment. The agent starts at the intersection of the two loops. At the intersection, the agent has a 50 percent chance of entering either loop. Exit states are located halfway between each loop. At an exit state, the agent has a 50 percent probability of exiting the environment. Observations are generated by placing the agent in the environment: σ^{100} corresponds to the agent surviving 100 time units. In figure 1, we learn a PSRs with 10000 observation sequences. We generate 10 PSRs and average their performance. The error is computed with the following norm:

$$\|f - \hat{f}\| = \sqrt{\sum_{x \in \text{observations}} (f(x) - \hat{f}(x))^2}.$$

We use this norm because of a bound presented by [AUTHORS], which states that () .

Pacman Timing

We proceed to work with timing in a Pacman environment. The transition structure of this environment is shown in Figure 2. Again we use 10000 observation sequences per PSR and compute the average of 10 PSRs.

Multiple Observations

To test whether the Base System would translate to multiple observations we construct a double loop environment where one loop is green and the other is blue. The lengths of each loop are also varied. We fix the length of observations to be $\text{loop1} + \text{loop2} * 3$. When we build empirical estimates of probabilities we set $f(x) = \text{prefix-occ}(x) / \text{num-strings-length}_x$.

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Thank you for reading these instructions carefully. We look forward to receiving your electronic files!