Instructions for Readers
The Chicago Journal of Theoretical Computer Science
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The *Chicago Journal of Theoretical Computer Science* is a peer-reviewed scholarly journal in theoretical computer science. Articles are submitted and published in LaTeX source form, and distributed internationally over the InterNet. Articles are augmented by refereed forward references to improvements and subsequent related work. Readers may obtain articles through *FTP* and *HTTP* (*World Wide Web*). Other widely used network tools will be supported as they arise in the future. The *Journal* is committed to minimizing publication delays, and to promoting maximum flexibility in the ways that readers use the journal for teaching, research, and scholarship. Readers' license is limited only as required to insure fair attribution to authors and the journal, and to prohibit use in a competing commercial product. Readers may use preformatted PostScript versions of articles, or they may do custom information processing and display from the LaTeX source.

1 Please Subscribe

Readers of the *Chicago Journal* must subscribe in order to enjoy legitimate access to published articles. MIT Press and the editors have decided not to invest effort in technical devices to prevent nonsubscribers from reading articles, because we prefer to employ our time producing the best possible product for subscribers, and because most devices for preventing illegitimate access also degrade legitimate access. We depend on the honesty of readers in order to collect the subscription fees that are necessary to support the operations of the journal. As a nonsubscriber, it is reasonable to inspect the materials in the journal, in the same spirit that you would inspect a magazine at the news-stand before deciding whether to purchase it. But, as soon as you decide to employ journal articles in your work or studies, you should subscribe ($30 per year), or even better persuade your library to subscribe ($125 per year). Instructions for subscribing are available at all of the information servers in Section 7. If another category of subscription appears useful to you, please propose it.

2 How Not to Read These Instructions

If you are a subscriber, and you only want to read an individual article in a preformatted layout, and you know the directory where the article is stored, just print or view the only file with the suffix "`.ps`" using your favorite PostScript processor. If you are contemplating anything more sophisticated, you may need to read on.

3 Rights of Subscribers

As a subscriber, or member of a subscribing library, you have very liberal rights to use articles published in the *Chicago Journal.* You may use articles from previous years, as well as those published in the year of your subscription. In the distant future, if very old articles must be archived offline for efficiency, there may be an additional charge to cover the cost of retrieving old articles. In the foreseeable future, all published articles will be available online.

Legitimate Uses of Published Articles

Over the years and centuries, society has developed a certain amount of consensus about the reasonable use of printed texts. It is probably impossible to lay out precise rules for the use of published electronic texts, but common sense reasoning in good faith should carry us a long way. Many principles carry over from printed text to electronic text, as long as those principles are expressed in terms of the transactions that take place between authors, editors, publishers, readers, and the information in the text, rather than in terms of physical operations on the presentation of the text. For example, the act of *reading* a text carries over fairly well, but the act of *copying,* which is well-defined for printed text, is not at all clear for electronic text. The act of *formatting* a text into a particular visual layout carries over from print to electronics, but because it requires much less capital equipment in the electronic form, it may often be done by readers instead of publishers.

In general, as a subscriber to the *Chicago Journal,* you have the right to use published articles in any way whose primary intention and effect is to further your own research or studies. You must not use articles in order to mislead others about the views or competence of the author, nor as part of a commercial product unless authorized by MIT Press. For example, you may

- read articles directly from the official journal servers, or from any other server that grants you access
- copy articles to your own file space for temporary use
- form your own permanent archive of articles, which you may keep even after your subscription lapses
- display articles in the ways most convenient to you—on your computer, printed on paper, converted to spoken form, whatever
- apply agreeable typographical styles from any source to lay out and display articles (see Section 6.2)
- apply any information retrieval, information processing, and browsing software from any source to aid your study of articles
- convert articles to other formats from the LaTeX and PostScript forms on the official servers
- share copies of articles with other subscribers

- share copies of articles with nonsubscribing collaborators *as a direct part of your collaborative study or research*

The last item particularly depends on your good faith and discretion as a reader. It is intended to allow the natural sort of working together that you might do with either a printed or an electronically presented article. It is not intended to convert every individual subscription into a large group subscription. If your collaborator wants to make substantial independent use of articles, she should subscribe. If you want to use entire articles in teaching a class, the class should subscribe—of course if your library subscribes then your students are included in that subscription. Every copy that you make of an article or an article fragment (not including purely temporary copies that constitute intermediate steps in processing articles for display or other purposes) must preserve the author's name, title, journal name, publisher, and copyright statement.

4 What is a Published Article?

The definitive version of an article published in the *Chicago Journal of Theoretical Computer Science* is a LaTeX source file containing the text of the article, an accompanying BibTeX source file containing the bibliography, and optional encapsulated PostScript files containing drawings included in the article. The journal's copy editors prepare the source files for each article to present the logical structure of the article as clearly as possible, so as to maximize portability of the text, and to facilitate future development of browsing interfaces and information retrieval applications. Precompiled PostScript translations are provided for readers who cannot format LaTeX, or do not wish to, but the LaTeX source is the definitive copy.

Reader-Powered Publication

Electronically published journals have used a variety of different publication formats, including bitmapped page images, PostScript page layouts, typographical formats such as LaTeX, plain ASCII, and special proprietary formats closely integrated with browsing and information-retrieval software. Each of these choices favors different qualities of publication—for example, bitmaps, PostScript, and some proprietary formats give authors and publishers maximum control over the beauty of the final display, while plain ASCII requires the minimum equipment and skill on the part of the reader, etc. The publication format of the *Chicago Journal* is intended to maximize *readers' power* to use articles in whatever ways they find most productive. The problem is that we cannot anticipate precisely what readers will do, but we should assume at least that they display articles in a wide variety of typographical formats suited to their equipment, their paper or screen size, and their eyesight, and that they apply browsing and information-retrieval software acquired from other suppliers than MIT Press. To stretch our imaginations a bit, there is already experimental software providing audio browsing of LaTeX documents.

The way to maximize the power of readers in the long run, without precise knowledge of reader behavior, is to represent the logical structure of articles in the most transparent and easily parsable way that we can manage. SGML was designed precisely for this task, but it can also be done satisfactorily with a disciplined use of LaTeX. Furthermore, LaTeX supports the representation of mathematical formulae fairly well, and most of our reader and author community already has the software to typeset and display LaTeX. But, maximum power and flexibility for readers demands a certain amount of standardization in the *source* format of articles. Readers, and particularly readers' software packages, must be able to parse important components, such as sectional units, paragraphs, sentences, displayed subtexts such as theorems, easily and unambiguously. To provide this uniform clarity in the LaTeX source, copy editors must polish authors' manuscripts into a disciplined subset of LaTeX.

5 How to Cite Articles

The source code for every published article contains a standard bibliographical citation to the article in BibTeX form. If you are citing the article in another document prepared with LaTeX, please copy that standard citation unchanged, or with the least change necessary to satisfy the stylistic requirements of your publisher. When quoting passages from articles, please copy directly from the LaTeX source as much as possible. The LaTeX source publication format for the *Chicago Journal* has all landmarks such as section numbers written in explicitly, rather than produced dynamically by `latex`, so if you quote published material in another LaTeX-formatted document it is easy to maintain perfect accuracy. You may load, or copy selected definitions from, the freely distributed style file `cjstruct.cls` order to process the special macros used in published articles (authors note—these macros are introduced during copy editing, so you need not be concerned about them).

When referring to specific portions of the text of a published article in the *Chicago Journal,* please be careful to use robust and portable landmarks. In particular, *do not refer to page numbers.* Page numbers are ephemeral in *Chicago Journal* aricles—they are reassigned dynamically for the convenience of the reader each time an article is formatted, but they have no permanence and no meaning. Instead of page numbers, refer to sectional units, definitions, theorems, lemmas, etc., by their numbers. If you need to specify finer grains, you may use short quotes, or the standardized paragraph numbers in the LaTeX source (these are often not printed, but see `\parnumstrue` below). If you really want to refer to sentences, they are marked unambiguously in the LaTeX source by the macros `\@` (for sentences ending in punctuation) or `\sentence` (when there is no terminating punctuation). Sentence numbers are not written into the source, but you may count from the beginnings of paragraphs. There are more cases than you might think in which one sentence contains another, so at this level of reference short quotes often provide the clearest pointers.

If you are confused about how to cite, quote, and refer to articles clearly and precisely, please contact me.

6 How to Read Articles

6.1 Structure of the Information Servers

Articles in the *Chicago Journal of Theoretical Computer Science* are published one at a time, to minimize delays. They are collected into volumes, labelled by the calendar year of publication. Within each volume, articles are numbered sequentially. The official information servers carrying the *Chicago Journal* have a directory for each volume, containing a subdirectory for each article. Within the subdirectory for an article, it is convenient to use a systematic assignment of file names for the several files associated with an article. For example, consider the fictitious 12th article published in the year

1993 (the first article, in fact, was published in 1995). The required files defining the article are

`cj93-12.tex`	definitive LaTeX source for the article body
`cj93-12.bib`	BibTeX source for the bibliography

In addition, if Figures 3, 4, and 7, and Tables 1 and 3, are presented in encapsulated PostScript form, those files are

`c9312f3.eps`	encapsulated PostScript for Figure 3
`c9312f4.eps`	encapsulated PostScript for Figure 4
`c9312f7.eps`	encapsulated PostScript for Figure 7
`c9312t1.eps`	encapsulated PostScript for Table 1
`c9312t3.eps`	encapsulated PostScript for Table 3

Other figures and tables may be represented directly in the LaTeX source. The files described above constitute the definitive permanent text of Volume 1993, Article 12. A preformatted PostScript version is provided as a convenience with the name

`cj93-12.ps`	preformatted PostScript version of the entire article

An experimental preformatted audio version of the article in 8,000 Hz 8-bit μ-law encoding is provided as

`cj93-12.au`	preformatted audio version of the entire article

(the audio feature is under development).

6.2 Formatting and Displaying Articles

The simplest way to read articles from the *Chicago Journal* is to display the preformatted PostScript version supplied with each article, either on a graphics screen, using a viewer such as `ghostview`, or printed on paper using any PostScript printer and driving software. If you read articles this way, please be aware that, unlike an article printed in a paper journal, the specific layout in the PostScript version has no permanence. In particular, you should *not* refer to typographical ephemera, such as page numbers, in written references to articles. Instead, use the permanent numbers of sectional units and other subtexts, such as theorems. If you prefer to read aurally, you may play the experimental audio version of the article through appropriate audio output software and devices. The PostScript and audio versions are not guaranteed to be archived permanently. They will be provided as long as they seem to be sufficiently valuable as conveniences to readers who cannot or do not care to produce their own layouts.

Custom Formatting

Instead of reading the preformatted PostScript or audio version of an article, you may present the article in whatever layout is most convenient for your own research or study. The LaTeX source format for the journal has been designed to make it as convenient as possible for you to customize the layout without accidentally changing the contents of the article. Essentially, you may apply any LaTeX style definitions, acquired from others or of your own invention, to produce a convenient display. This is possible without *any* editing of the definitive text of the article, as represented in the `*.tex`, `*.bib`, and `*.eps` files described above. Since TeX is a powerful and general programming language, something called a "style definition" might in principle change the text arbitrarily, substituting entirely different material. It is your responsibility as a reader not to distort the author's meaning by processing an article in a misleading way through a "style definition." In practice, this is no more subtle than your responsibility not to misattribute ideas in print.

In order to format *Chicago Journal* articles on your own, you need:

1. an installation of LaTeX,
2. the LaTeX style file `cjstruct.cls`,
3. for many articles, one or more of the $\mathcal{A}\mathcal{M}\mathcal{S}$ style definitions for mathematical formulae.

All of the style definitions are distributed for free on the same official information servers that hold journal articles. Otherwise, you will start with the standard LaTeX `article` style, and customize from there. All LaTeX source for published journal articles uses the `cjstruct` style. The definition of this "style" does very little in the way of stylistic layout; rather, it translates from an unambiguous markup of the logical structure of the text into the macro calls expected by the `article` style. The `cjstruct` style definition reads in reader-defined options and other style definitions to determine most of the layout style. Any layout style set in `cjstruct` may be superseded by reader definitions.

To format a *Chicago Journal* article you need to establish all of the defining files for the article in a directory that you may write in, and run LaTeX once, then BibTeX once, then LaTeX twice more. If you find this sequence annoying, you may try the UNIX utility `latexmk`, available from the official information servers.

The two vehicles for reader customization are files named `cjropts.tex` and `cjrdefs.tex`, defined by you and read in by `cjstruct`. `cjropts.tex` is read near the beginning of processing, and is the best place to accomplish simple customizations: to choose a main LaTeX style other than the default `article`; to provide style options, such as point sizes; to set style parameters, such as page length and width; to select or suppress optional features in the article, such as author information, table of figures, paragraph numbers. `cjrdefs.tex` is read near the end of processing, just before the options to the main LaTeX style. Your definitions in `cjrdefs.tex` override everything that came before.

Simple Customization with `cjropts.tex`. The default style is `article`, which is found with essentially every LaTeX installation. To select a style other than the default, put a line of the form

`\rstyle=`{*style-name*}

in your `cjropts.tex` file. To provide options to that style, put in a line of the form

`\roptions=`{*option-list*}

where *option-list* is a list of options separated by commas. When you run `latex`, the article will be formatted as if it began with the line

`\documentstyle[`*option-list*`]`{ *style-name*}

or, if you are using LaTeX 2_ε, with

`\documentclass[`*option-list*`]`{ *style-name*}

Any style that uses the same command names as `article` should work, but styles with different commands, such as `amsart`, will not. Many useful options are compatible with `cjstruct`, but a few, such as `leqno`, are not.

You may also set normal TeX and LaTeX style parameters, such as `\textwidth`, in `cjropts.tex`, just as you would in your own LaTeX source file. In addition, there are some special style parameters defined by `cjstruct.cls`:

- `\infotrue` causes administrative information about the authors and the paper to be listed at the beginning of the paper (default `\infofalse`);
- `\contentsfalse` suppresses the table of contents (default `\contentstrue`);
- `\listfigsfalse` suppresses the list of figures (default `\listfigstrue`);
- `\listtabsfalse` suppresses the list of tables (default `\listtabstrue`);
- `\listthmsfalse` suppresses the list of theorems, definitions, and similar labelled subtexts (default `\listthmstrue`);
- `\listeqnstrue` causes a list of numbered equations to be formatted in the head matter (default `\listeqnsfalse`);
- `\abstractonlytrue` suppresses everything after the abstract, and also the table of contents, list of figures, etc. (default `\abstractonlyfalse`);
- `\parnumstrue` causes paragraph numbers to be formatted in the margin as landmarks for references (default `\parnumsfalse`);
- `\renewcommand{\parnumstyle}{` *your-style*`}` redefines the style for paragraph numbers (default `\tiny\it`);
- `\renewcommand{\parnumsep}{` *your-sep*`}` redefines the separator between paragraph numbers and the margin (default `\hspace{3em}`);
- `\renewcommand{\secnumsep}{` *your-sep*`}` redefines the separator between section numbers and section titles (default `\hspace{1em}`);
- `\renewcommand{\floatnumsep}{` *your-sep*`}` redefines the separator between figure/table numbers and their titles (default `\hspace{1em}`);

- `\rbibstyle={`*your-bib-style*`}` selects a style for the bibliography (default `alpha`);
- `\includeepsfalse` prevents inclusion of encapsulated PostScript pictures, and leaves blank spaces for the figures in case you want to cut and paste (default `\includeepstrue`);
- `\epssupport={`*eps-support-file*`}` selects a file of definitions to support inclusion of encapsulated PostScript (default `epsf.sty`);
- `\renewcommand{\epsmagnification}{` *your-mag*`}` selects a magnification factor for scaling all encapsulated PostScript inclusions, presumably to fit a small page format (default `1.0`);

Advanced Customization with `cjrdefs.tex`. In `cjrdefs.tex` you may over-ride any definitions in `cjstruct.cls` and the main LaTeX style that you chose by setting `\rstyle` as described above. If you are TeXpert enough to be performing advanced customization, your best source of information is the documented source for `cjstruct.cls` and the other style file that you have chosen. Due to the order in which LaTeX reads style definitions, the files associated with any *options* that you select by setting `\roptions` are read in after `cjrdefs.tex`, and those definitions will over-ride yours. To enjoy the truly last word, you may read in option files explicitly, using `\input` commands in either `cjropts.tex` or `cjrdefs.tex`. Or, you may create an option file of your own, say `myopt.sty`, and make it the last option mentioned when you define `\roptions`. Such a personal `*.sty` file has the additional advantage of access to macros with occurrences of the "@" character in their names.

Editing the LaTeX Source of an Article. As much as possible, avoid editing the LaTeX source code of an article. You should be able to achieve most any stylistic customization by appropriate entries in your own `cjropts.tex` and `cjrdefs.tex` files. The only obvious reason for editing the article source is to quote a short passage in another work—for this purpose you should use your favorite editor program to copy in the simplest and most direct way possible, and either load or copy selected definitions from the `cjstruct.cls` style file to interpret the macros in the quoted portions. In particular, *you* *should not replace the specially defined numbering commands with the corresponding LaTeX commands* (e.g., you should not replace `\asection` with `\section`) because then `latex` will renumber sectional units and other subtexts whose identifying numbers are intended as standardized landmarks for reference into the article. If you think that you need to edit article source in any more radical way than excerpting a quote, please contact me for an alternative solution.

7 For More Information

More information and various materials associated with the *Chicago Journal* are available through

- *World Wide Web* to MIT Press (for example, using *Mosaic*)
  - use URL `http://www-mitpress.mit.edu/jrnls-catalog/science-toc.html`

  World Wide Web to U. Chicago
  - use URL `http://cs-www.uchicago.edu/publications/cjtcs`
- Anonymous *ftp* to MIT Press
  - connect to `mitpress.mit.edu`
  - login as `anonymous`
  - change directory to `pub/CJTCS`

  Anonymous *ftp* to U. Chicago
  - connect to `cs.uchicago.edu`
  - login as `anonymous`
  - change directory to `pub/publications/cjtcs`
- Network mail to `chicago-journal@cs.uchicago.edu` and `journals-info@mit.edu`.