

Bridges Conference Proceedings Guidelines: A L^AT_EX or Word-Processor Template for Your Paper

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Abstract

We present a working self-referential¹ sample in \mathbb{R}^2 of how a Bridges Conference paper should be formatted, using the L^AT_EX typesetting system, but with tips for word-processor users also. Abstracts such as this should be formatted in a 9 point Times Roman font, be right- and left-justified, and have margins inset from those of the main paper. Authors ... are encouraged ... by their readers ... to avoid ... the somnambulant ... passive voice ... as much as ... possible ... zzzzz. It is perfectly acceptable to use the first person “I” when talking about one’s own artistic endeavors, and the inclusive, academic “we” works for more formal needs. Your abstract should be only one paragraph, comprising anywhere from three to eight lines of text—the shorter the sweeter (note our correct usage of the word *comprise*).

Introduction

You, the author of a Bridges Conference paper, are responsible for the final typeset version that will be printed in the Proceedings and duplicated on the CD-ROM accompanying the Proceedings. Therefore, we the editors ask that you prepare your paper according to the guidelines described here.

If at all possible you should strive to use the free L^AT_EX typesetting system [?] to make your paper look its very best, especially if it has any substantive amount of mathematical formulæ in it. But if you are not familiar with L^AT_EX, you can draft your paper in any preferred word processor format. In either case, however, you *will be required* to submit your paper as a single PDF (Portable Document Format) file whose layout is essentially the same as described here. If you have problems creating a PDF version, please advise the editors as soon as possible so that we can help you.

Uniformity, clarity, and neatness of style enables the editors to create a professional-looking copy of the Proceedings. Therefore, the document styles described herein must be adhered to carefully, because otherwise too much work is placed upon the volunteers who must put the Proceedings into book form prior to the Conference. *Substantive variations from the styles described here are grounds for rejecting your paper, regardless of its astoundingly brilliant, iconoclastic, artistic, and/or ground-breaking content.*

Page Size, Numbering, Margins, and Justification

Use a template. If you are writing your paper using L^AT_EX, or a word processor such as LibreOffice or Microsoft Word, use a copy of this document as a template. It will set the paper size, proper margins, and all other styles for you. Replace this text with your text.

Paper size. We will print papers using US Letter size (8.5 inches by 11 inches) (21.59 cm × 27.94 cm). If you are working outside the USA, please check that you have *not* used A4 paper if that (or something else) is the standard in your country.

¹The L^AT_EX template files responsible for the PDF you are currently reading are available for download on the Bridges website at <http://www.bridgesmathart.org>. Enter “LaTeX” or “template” into the website search field to find the template files’ specific location. And try to avoid putting footnotes in the abstract!

Page numbers. *Do not insert page numbers or headers or footers in your paper.* At this stage, neither you nor the editors know where in the Proceedings your paper will be placed. Sequential page numbers will be added later on at the publishing stage. Except in special circumstances where the editors have informed you otherwise, you must limit your paper to eight (8) pages. If more than eight pages, the editors will ask you to shorten it to eight (8) pages, or they will reject the paper outright, or if not, you may be asked to provide funds (in dollars) to help pay for your extra length.

Even length. The Proceedings will be a bound book. Every paper will begin on an odd-numbered, right-hand page. If your initial draft comes in at an odd number of pages (typically 7), it will therefore end with an entire blank page just prior to the next paper after it. So please work to fill your paper out to an even number of pages, by adding an illustration or fleshing out some exposition better. Either that, or cut it down to an even six or four pages.

Automatic layout. If you are using L^AT_EX, a “bridges.sty” file should be in the same folder or directory as your paper. Ensure that you have included the command `\usepackage{bridges}` near the top of your paper’s .tex file (as the source code for this template file does). This presets the Bridges paper styles and margins and other settings for you automatically.

Manual layout. If you are not using L^AT_EX, or some other template file, your paper should conform to the following specifications to ensure that all papers have uniformity of appearance in the Proceedings:

1. On the first page, the distance from the top edge of the paper to the first line of type (i.e. the title) should be 3 cm (1 3/16 inches). For this you may simply insert one extra line at the top of the title page.
2. On the second and subsequent pages, the distance from the top edge of the paper to the top of the first line of type should be 2.5 cm (1 inch).
3. For all pages, the distance from the left edge and right edge of the paper to the left and right margin of the type should be 2.5 cm (1 inch).
4. On the first page, the paragraph containing the abstract text should have left and right margins of approximately 3.5 cm (1 3/8 inches).
5. The distance from the bottom of the last line of type on the page to the bottom edge of the paper should be no less than 2.5 cm (1 inch). For all but the last page, strive to make this distance as close to 2.5 cm (1 inch) as possible. The final line or figure of your paper can end anywhere on the last page.
6. If possible in your word processor, set a paragraph style that inserts a small amount of vertical space between adjacent paragraphs. This enhances readability. But don’t bother if you cannot accomplish this in a subtle manner; an entire blank line is too much.

Justification. You should justify the text of your paper to both the left and right margins. Ragged right edges do not look as good. Unlike the other paragraphs in this template file, this paragraph you are currently reading has a ragged right edge and is *not* properly justified. Which is also why it’s harder to read.

Paragraphs. With the exception of the first paragraph in any section, you should indent the first line of every paragraph by approximately .3 inch (.75 cm). Leave the first paragraph of any section left-justified. But if you are using initial, short, boldface sub-heading phrases—as we are in this section—don’t indent paragraphs beginning with those boldface sub-headings. The boldness is sufficient warning to the reader that a new thought is arriving.

Text Font and Sizes

Your paper should be single-spaced in 11 pt. “Times-Roman”, “Times New Roman”, or similar Times-family font. Some technical formatting programs print mathematical formulas in *italic* type, with subscripts

and superscripts in a slightly smaller font size. This is acceptable. If you use \LaTeX and its math typesetting apparatus, all of this is taken care of for you .

Your paper's title should be centered across the top of the first page and should be in a distinctive point size or font, preferably in 16 pt. "Times-Roman" or similar.

The author name(s) and address(es) should be centered below the title, using 12 point type. Below the names, any address information should be centered on as few lines as possible. You can place on a single line address fields that normally would appear on separate lines, as long as you separate them with a comma. All of this is demonstrated on the first page of this template paper above. can use `\textbullet` to insert one of these characters. If you are using a word-processor on the Macintosh computer, use Shift-Option-8.

An e-mail address is optional. Furthermore it should only be provided if you are confident you will be reachable at it for at least several years into the future. Place it centered below the address information, formatted in a typewriter typeface, also shown above. In \LaTeX , the `url` package has a command `\url{}` to accomplish this; you can also just use a typewriter font, as in `{\tt ... }`.

Each figure in your paper should be captioned and numbered sequentially using the word **Figure** and a number, all in bold 11 pt. text, not italic. Center all captions, just below each figure. The text explaining the figure should be in 11 pt. *italic*. See Figure ?? below for an example.

If you are not using \LaTeX , use two blank lines between the end of the paragraph and the next major heading; use one blank line between the major heading and the immediately following first paragraph.

Title and Headings

Paper title. Your paper's title should be as short and snappy as possible, with just enough information to get the reader interested. Strive to make it just one line if at all possible, two lines at the maximum.

Section headings. Center your major headings, and use a bold 12 pt. font, without underlining. Avoid numbering sections unless you are referring within the text from one section to another. For short expository Bridges papers, such cross-sectional references are rare.² Whether you number your sections or not, the last section, **References**, should *not* be numbered. \LaTeX normally numbers section headers, so to suppress numbering, use the "`\section*`" variant declaration. The source for this template demonstrates how.

Sub-section headings. Avoid more than two levels of heading: sections and sub-sections should be more than sufficient in a relatively short, illustrated Bridges paper. Placing sub-section headings on their own line wastes a great deal of usually precious space. So if you use two levels, use the style here, where the bold sub-section title begins one or more paragraphs. For example:

Case and punctuation. The title and section headings should use mixed upper and lower case: conjunctions such as "and" or "or" and prepositions such as "of" or "with" begin with a lower case letter, whereas Nouns, Verbs, Adjectives, and Other Important Words begin with an uppercase letter. Avoid most punctuation (one colon or one comma is acceptable). Do not end a lone title or section heading with a period (full stop).

On the other hand, all non-indented, in-line, boldface sub-section headings should not be more than a few words, should not be long sentences, and should contain no punctuation except for a final period (full stop). The period separates the sub-heading from the beginning of the paragraph that follows, as demonstrated in this section. In general, only capitalize the first word of the sub-heading. But if you prefer to use mixed case, which makes the sub-heading stand out a bit more, ensure that you are doing so consistently throughout the paper in all your sub-headings.

In the next section, we will purposely violate our formatting rule concerning sub-heading indentation,

²Numbering suggests a more technical paper, and establishes a hierarchy, but if you have no cross-section references, then section header numbering in just an 8-page paper is more "noise" than it is useful.

so that you can see the difference. For consistency's sake, however, please use the style described and used above. Rule #6 says: "If you must break rules, at least do so consistently." Don't break it.

Figures and Illustrations

You want people to read your paper, correct? The chances of any Bridges paper being read decrease by 50% if it has no illustrations in it. So think about illustrating pictorially what you are describing mathematically, even if your subject is time-based music or some other fundamentally non-visual medium.

Positioning. Ideally, you should position your illustrations within the text, between paragraphs. If not, then place your figures in order at the end of the paper. If you can fit two illustrations beside themselves horizontally, it is a more efficient use of space, although captioning may be more difficult. Scale the picture properly to ensure that the left and right borders of the figure do not extend beyond the left and right text margins. Space is usually at a premium, so don't scale the figure as large as possible if it can be understood in a smaller size.

Captions. Make sure that you include a caption for each photograph or line drawing. Captions that require more than one line are discouraged, although sometimes a long caption is necessary. You must number your figures so that you can refer to them in the text. While it is not always possible, given limited space, you should strive to place a figure *after* its first reference in the text. In some word processors, you can place a figure to the right of the text, which is acceptable and a generally efficient use of space. But try to avoid too much crowding.



Figure 1 : *The wireframe church outside Leeuwarden, as seen during Bridges 2008.*

Copyright material. If an illustration is not your own, you need to get the copyright owner's permission for reproduction. In the U.S., anything published before 1923 is okay to copy. If you are thinking of "borrowing" a graphic from a website, *get the owner's permission*. (But be forewarned that website graphics will probably not be of high enough resolution for printing—see below.)

Color. The original color illustrations in your PDF paper *will* appear on the CD-ROM containing the electronic, computer-readable version of Proceedings. But the Bridges Proceedings are currently printed using a gray-scale rendering of the final PDF file you submit. If your paper contains color illustrations, it is *very important* that you preview them by printing your paper out on a non-color printer. Sometimes

color illustrations can lose too much information, look muddy, or lose contrast when translated to gray-scale. Shades of blue, green and brown generally become indistinguishable in grayscale. Also, in drawings or text, do not use color for emphasis. In drawings, use line thickness or grayness; in text, use *italics* but not boldface (boldface is reserved for titles, headings, and sub-headings).

Graphics resolution. It is very important to know the resolution of any picture files before they are incorporated into your final PDF file. Otherwise, your pictures may not be legible in the printed Proceedings. *If you don't understand the following, or don't know how to find out the required information, then please ask for help.* You should aim for a final resolution of *at least* 300 dpi, and preferably higher. If the picture is being magnified, this means that you also need to take into account the actual size it will be printed. A picture that is 300 by 300 pixels should not be printed in a space larger than one inch square. So for example if you have a picture sized to about 4 inches high in your document, the original must be at least 1200 pixels high in the original incorporated file.

Resizing. On the other hand, there is no point in using files with an overly high resolution. They will only increase the size of the eventual PDF file and may make it difficult or impossible to submit by e-mail. If you need to decrease the file size, or crop and re-save, *never* re-save as a JPEG file unless you are experienced with making the correct settings (see below).

Scanned line art. If your line art is not resolution independent, then scan it at 600 dpi and save it in GIF or TIFF format before incorporating it into your word processing document.

Avoid JPEG format. Digital cameras usually output JPEG files. If you try to save a picture in JPEG format (as a .jpg or .jpeg file), you will almost certainly lose image quality. JPEG compression uses a system that degrades an image and the default settings of graphics software often do this dramatically.

TIFs preferred. In a graphic editing or previewing program, if you must save a picture for some reason, do so in TIFF format (as a .tif or .tiff file), preferably with LZW compression, which does not lose any image quality. (Use the **Save As...** command, and then choose the LZW compression option.) This may not help with the final size of the document, but it's worth a try.

Creating Your Final PDF File

Again, if you are in doubt about creating a PDF, ask for help first. If we can't guide you with instructions, we may ask you to send us the original word processor file. Keep any incorporated graphics files on hand in case they are also needed.

Using \LaTeX , you should be able to get your paper typeset in a final PDF form, using the various PDF-related options that are standard these days.

For word processors on an Apple Mac OS X computer, you can create a PDF file by choosing the PDF option in your viewer's or word processor's standard Print command. TeXShop—among other front-end GUI applications for TeX—does this automatically.

If you are using Adobe's Acrobat program on any platform, there will likely be many more options. If you have many pictures in your paper, make sure the file settings are set to compress the files. Avoid JPEG format for the reasons described above. Also, make sure that the paper size is correct.

When creating PDFs, check the final file in a previewing application, particularly the paper size and whether headings are on the correct page, and whether color illustrations are still understandable when printed in grayscale.

A Few Typesetting Tips

First, if you are using \LaTeX , use your favorite search engine to search the web for “LaTeX Cheat Sheet” [?]. It is invaluable, concise, and available for free in both PDF and LaTeX format. Second, use this file as your template, and read through its source code to see what it does.

Good typesetting has a great many æsthetic subtleties to it. Here are some further helpful hints, gleaned from the masters, yet still violated in many published math technical papers:

- Look out for “widows”. They occur when the last last line of a paragraph appears at the beginning of the next page. Similarly, don’t let a section title be on a separate page from what follows.
- When your paper uses a short mathematical symbol, such as X_i , and \TeX typesets a line starting with X_i (see, right here!), you should precede that $\$X_i\$$ in your source file with a non-breaking space (a \sim). This keeps \TeX from beginning a line with that lone symbol, making the paragraph more readable. For example, we have cleverly demonstrated in this very paragraph two incorrect word wraps leaving single symbols glaringly at the start of lines 2 and 3. By preceding them with a non-breaking space (a \sim), the problem is solved. Check the source for this template file to see how to do this. And this advice applies equally well if your are using a WYSIWYG word processor instead of \LaTeX .
- If you use a period for any reason other than to end a sentence, and it is followed by a space, it looks better if you use a non-breaking space (a \sim). This is because \TeX places extra space between sentences, and it assumes that a period followed by a space ends a sentence. Consider the subtle spacing difference between Mr. McGoo and Mr. McGoo (you may have to magnify to see it more clearly). The former, which doesn’t use a non-breaking space, looks wrong to the discerning eye. This is particularly important when typesetting names with initials in bibliographies (see below), and when using abbreviations not followed by a comma or other punctuation.
- The same goes for spaces after colons: if you don’t follow them with a non-breaking space (for example, colons:~if, as we have done here in this sentence), there will be a tad too much space after them, especially when using right justification. You can use this technique in titles and section headers containing a ‘:’ also.
- Don’t use *italic* or **bold** typeface (or *both*) for emphasis. Use the \LaTeX `\emph{}` command instead. Its default behavior is to use *italic*.
- When you want to set off some text—like this—for emphasis, use em dashes without any surrounding spaces. In \TeX , three hyphens in a row (---) is an em dash. Don’t use a single- or double-hyphen (en dash) in this situation. Double hyphens (--) are dashes used in, e.g., bibliography page or other numerical ranges, such as from 1–8, but not 1-8.
- Use typographic open and close, ‘single-’ or “double-quotes.” Avoid the computery ". In \LaTeX , an open double-quote is signified by ‘ ‘ (two single reverse apostrophes), and its matching closing double-quote is signified by ’ ’ (two single quote marks), surrounding what you want quoted. If you are using a word processor on the Macintosh computer platform that doesn’t automatically translate computer quotes into typographic quotes, open and close double-quotes are available using Option-[for “ and Shift-Option-[for ”, and Option-] for ‘ and Shift-Option-] for ’.

Citations and References

About nine out of ten Bridges paper submissions have had incorrectly or sloppily formatted bibliographies in the final references section. This means that the reviewers for nearly all papers have to spend time explaining how to make it look better and consistent with other papers. So here are some tips to follow that will help:

When citing references in the text of your paper, the corresponding number of your reference should appear in square brackets, e.g., [?]. These should all be citations to numbered items in your bibliography.

The final section of your paper contains this bibliography: a list of the scholarly references—especially any previous or related work of others—that you are aware of and are pertinent, that you rely and build upon, or from which you are distinguishing your work. Primary and permanent sources are your friend. In decreasing order of importance and authority, these are: books, published papers in peer-reviewed journals, magazine articles (with date of publication), private correspondence, graffiti, fortune cookies, and most internet websites (some are acceptable, such as <http://www.oeis.org>, as of Jan. 8, 2012).

Papers (like this template) whose bibliographies are essentially lists of website URLs are considered *highly suspect* from a scholarly point of view. Wikipedia references will be frowned upon by reviewers, although good Wikipedia entries often have their own list of references that might be primary and worth citing (after you’ve read them and deem them pertinent). Nonetheless, if you must reference a URL in cyberspace, include the date you yourself accessed it from your browser, by appending “(as of Feb. 31, 2010)” or similar. Yes, there are respected mathematical peer-reviewed journals that are published on the web, see, e.g., [?]. But they are respected because they also publish an annual print volume.

Ensure that your URLs are correct. A single typographic error in a URL makes it worthless. Either click on each one in your final PDF (if the viewer supports jumping to your browser with it), or copy and paste the URL directly into your web browser to ensure it is working and leads to where you think it leads.

If you are using \LaTeX , most of what you need to do to format your references is done automatically using the `\cite{}` mechanism in the body of your paper. You then end the paper with an expressly declared `\begin{thebibliography}` and `\end{thebibliography}` environment, within which you fill out what your `\cite{}` tags refer to. Or for more experienced \LaTeX users, you can use `\bibliography{mybib}` to search your \BIBTeX database (a file called `mybib.bib` in the same folder/directory as your paper’s \TeX source file) for the cited entries. The source code for this template your are reading right now contains both.

If you are not using \LaTeX , place each reference in a paragraph that has been set up in your word processor to have a “hanging indent” and a tab stop, both set at the same position, and wide enough to skip over the bracketed, two-digit number that appears at the start of each “paragraph” in the list. If your reference word-wraps onto the next line, then the start of the line will be automatically indented. This leaves the column of reference numbers easy to scan vertically. For example, consider the following bibliographic entries, which are typical in format of nearly all previous Bridges paper submissions done in word processors:

- [9] Thurber, James, “The Day the Bed Fell on My Father”, Consolidated Anthology of Children’s Stories, vol. 3 (1934).
- [10] Einstein, A., “ $e = mc^2$ and its Discontents”, J. Applied Nuclear Metaphysics, vol. 41 (1946), pp. 741–777.
- [11] Plumber, Joe the, “Irregular heterodox orthoplogenies in American election pre-cycles”, J. Intermedia Tea Party “Studies”, vol. 0.00004 (2010), p. vii.

Notice that it is difficult to see the citation references in brackets. The following reformatting is much better because the reference numbers are vertically aligned in their own column, and thus clearer and easier to find:

- [9] Thurber, James, “The Day the Bed Fell on My Father”, Consolidated Anthology of Children’s Stories, vol. 3 (1934).
- [10] Einstein, A., “ $e = mc^2$ and its Discontents”, J. Applied Nuclear Metaphysics, vol. 41 (1946), pp. 741–777.
- [11] Plumber, Joe the, “Irregular heterodox orthoplogenies in American election pre-cycles”, J. Intermedia Tea Party “Studies”, vol. 0.00004 (2010), p. vii.

If you are using \LaTeX and your references list has more than nine entries in it, make sure you append “{99}” to the start of the bibliography section, as in `\begin{thebibliography}{99}`. This will make the list look better by aligning the start of each entry’s text vertically, regardless of whether the cite number has one or two digits, as shown above for reference [9]. And remember to use a tie, or a non-breaking space `~`, [?], in front of individual citation references, to avoid lines like this one that start with a bracketed citation.

Try to keep items in your references list only to those that you actually cite previously in the body of your paper. Don’t just list some books or papers that influenced you and you think everyone should read, e.g., [?], unless there is a specific place in the paper, preferably with page number(s), where it is pertinent to have cited it.

The following is a sample final references section that does not use \BIBTeX ’s database capabilities. You are in charge of ensuring a consistent formatting style for each entry. But there is no need for an accompanying citation database file, `mybib.bib`, and you can include extra information that \BIBTeX might not support for a given bibliographic style, such as the extra URL reference in [?].

References

- [1] W. Chang, \LaTeX Cheat Sheet (2010), <http://www.stdout.org/~winston/latex/latexsheet.pdf> (as of Jan. 8, 2012).
- [2] M. Chladný and M. Škoviera, “Factorisation of Snarks”, *Electronic Journal of Combinatorics*, 17(1), R32 (2010), http://www.combinatorics.org/Volume_17/PDF/v17i1r32.pdf (as of Jan. 8, 2012).
- [3] H. S. M. Coxeter, “The non-Euclidean symmetry of Escher’s picture Circle Limit III”, *Leonardo*, 12 (1979), pp. 19–25.
- [4] G. Grätzer, *More Math Into \LaTeX* , 4th ed. (2007), Springer.

And this is a similar bibliography [?], as formatted in the `plain` style, using \BIBTeX and the accompanying file `mybib.bib`. Obviously, you only want to use one or the other in your paper. Prior to this working, you must typeset your `paper.tex` file to output its citations into the usual \TeX `paper.aux` file, then process your `paper.tex` file with \BIBTeX to create a `paper.bbl` file, then run `paper.tex` through \LaTeX again twice to get the final typeset result. For more on \BIBTeX , see [?].

References

- [1] Winston Chang. \LaTeX Cheat Sheet, 2010. <http://www.stdout.org/~winston/latex/> (as of Jan. 8, 2012).
- [2] Miroslav Chladný and Martin Škoviera. Factorisation of Snarks. *Electronic Journal of Combinatorics*, 17(1):R32, 2010.
- [3] H. S. M. Coxeter. The non-Euclidean symmetry of Escher’s picture Circle Limit III. *Leonardo*, 12:19–25, 1979.
- [4] George Grätzer. *More Math Into LaTeX*. Springer, 2007.
- [5] Oren Patashnik. \BIBTeX 101, 1998. <http://www.tug.org/TUGboat/Articles/tb19-2/tb59patash.pdf> (as of Jan. 8, 2012).
- [6] Doug McKenna and Reza Sarhangi. Bridges Conference Proceedings Guidelines: A \LaTeX or Word-Processor Template for Your Paper, 2012.