

# LaTeX Testdrive

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## Abstract

The abstract should summarize the contents of the paper and should contain at least 70 and at most 150 words. It should be written using the *abstract* environment.

## 1 Introduction

I opened the LNCS LaTeX template and did some edits.

1. It seems when a section is individually edited and saved, it loses the section and subsection numbers. Having no number associated with a section is usually the behaviour of the star version of that  $\text{\LaTeX}$  macro, namely `\section*{}`.
2. I did some `\label` and `\ref` edits. References work, but in a possibly related problem to my previous point, they are numbered by the order in which I added the `'` commands in the separate section blocks, rather than in order of the sections in the document. I did 3 separate edits for 3 separate sections and the Reference "3" was pointing to my last edit, even though that was in Section 1.
3. I enjoyed the "quick edit" menu. The "header" preamble is a good idea that can remove some operational complexity with editing fragments in LaTeX. so
4. The foldable index is very cool!
5. The exports to various PDF formats succeeded gracefully, I quite like the way you've separated form from content in that workflow. And also nice UI. As long as you stick with the restricted subset of  $\text{\LaTeX}$  this is quite functional.

## 1.1 Per-user preambles<sup>1</sup>

This might be off-topic of authorea, but here is a rather deep LaTeX-centric discussion:

In PlanetMath.org we had thought of also providing a standard per-user preamble, which would host the macros of an individual user, since each author tends to introduce his own macros (e.g. I have my own `\LaTeXML` macro). I think the Git foundations of authorea can take that idea to the next level by facilitating the remix of such definitions both between researchers and between manuscripts. Once a GitHub file, each preamble has a designated URL and a manuscript can be allowed to use a list of such files. To help newly collaborating authors, however, you'd like to have good error reporting when their macros have the same name and clash, and definitely good messages for real errors. Otherwise remixing files becomes a nightmare.

This line of reasoning also applies to bibliographies, when they are not standard entities fetched from external sources. Each L<sup>A</sup>T<sub>E</sub>X-writing professor in my university maintains his own personal bibliography, especially the more TeX-savvy ones.

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## 1.2 Vision of authoring

Again, I realize your vision for Authorea is to go in the opposite direction of the concerns above. Using bibliographic entries from standard providers, such as DOI, is definitely a solution to this issue for official citations. I have seen (and written) citations of less standardized resources, such as software projects, or personal communication, when giving credit for non-traditional contributions. However, I realize Computer Science is probably one of the most liberal fields in this regard – I had an applied mathematician from NIST exclaim in horror the moment I suggested he could cite something that isn't a printed book with an ISBN number, for example. But that is a mathematician of “the past”, rather than one “of the future”.<sup>23</sup>

What is crystal clear is that high quality citations, references and typesetting are essential for having a trusted and loved product.

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## 1.3 Comments

In Planetary (the stack behind PlanetMath.org) we had at one point implemented **localized comments**, which attach themselves to a specific location in the document (similarly to the way XPointer would approach the problem, though we had our custom implementation). Since we're talking reflowable HTML, the client-side JavaScript then had to do some extra work to position

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<sup>1</sup>Can I get sections and subsections bold by default?

<sup>2</sup>What I am also trying to do in this discussion is avoid reaching any premature conclusions. So, just to be clear, this is not me being indecisive, rather me presenting facts and experience without hurrying to judgement. You and Nathan have the Big vision for Authorea, but I am more than happy to offer any experience and ideas that come to mind.

<sup>3</sup>Would be great to have a spellcheck enabled in this editor.

a comment mark at the right-hand margin, as close as possible to the fragment that was commented on.

That small hassle aside, it was extremely intuitive to understand what is being commented on, as hovering over the comment tooltip highlighted the original fragment in the document that was being addressed. Which solves the issue with the example I made in the comment to this setion.

## 2 Content

I will attempt some labels here, on the subsections bellow. Note that this edit is done only on this individual part of the document (Exploration.tex) in isolation.

### 2.1 Subsection Alpha

2. Second, I add the subsection Alpha and add a label for it. Then I save again.

### 2.2 Subsection Beta

3. Third and last, I add subsection beta, a label and save.

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### 2.3 Subsection Gamma

1. I first write subsection Gamma, add a label for it and save the document.  
And now, reference to Subsection Alpha 2.1, Subsection Beta 2.2 and Subsection Gamma 2.3.

## 3 Section Alpha

5. Second section insert, inserting section Alpha, just before Gamma.

## 4 Section Gamma

4. First secton insert - saving section Gamma.

## 5 Section References - Example

And now references to the three sections:

- Section Alpha is 3
- Section Beta is 6
- Section Gamma is 4

1	2	3
4	5	6

Table 1: An example table with 6 numbers

A Foo Bar

Figure 1: '

I think the problem with the numbering inconsistency is clear. I think the way the labels are processed is in the order the individual files are saved, rather than in the order of the entire narrative of the document. That is one of the challenges of doing labeling right with LaTeX while not reconvertng the entire document.

However, the moment I edited the layout and saved, the references were regenerated in the correct order. I am guessing saving the layout reconverts the entire document, which of course performs the label/reference counting correctly.

Interestingly, adding you as a collaborator also reset the references, I guess that reconverted the entire document as well. I am doing one more editing pass to reproduce the bug.

**EDIT:** Alberto has pointed out in a comment that it only takes a page refresh for the JavaScript to regenerate the reference numbers, which renders the above invalid.

A table example:

## 6 Section Beta

6. Third insert and last for the section experiment, Section Beta.

$$\|a\|_b^2$$