Full Title*

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ANONYMOUS AUTHOR(S)

Write this last. State the problem. Say why it's an interesting problem. Say what your solution achieves. Say what follows from your solution.

Additional Key Words and Phrases: keyword1, keyword2, keyword3

1 INTRODUCTION

One page¹. This is a template for your (mine?, first?) research paper. The benefits of this template are:

- It has a bulleted list of contributions. This is the list you have to rewrite first. It will drive the entire paper.
- The repository, this template is in, has a Makefile. Using make will save your from setting up the build system for your paper. So you can start writing immediately. You'll need to install lhs2tex² though.³
- We present few examples of 1hs2tex, a tool to make your (not only Haskell) code pretty type set. It can also be (ab)used for typing more than code blocks (Section 3).
- The template is prefilled with *Seven simple, actionable suggestions* by Jones [2015], that will make your papers better (Appendix A).
- We also mentions other seven actionable principles by Dreyer [2016]. Again, to make your papers better (Appendix B).

2 MAIN IDEAS

2-3 pages.

Figure 1 looks impressive...but sends readers to sleep and/or makes them feel stupid. Explain it as if you were speaking to someone using a whiteboard. Conveying the intuition is primary, not secondary. Once your readers have the intuition, they can follow the details (but not vice versa).

3 THE DETAILS

More sections. 5 pages. This is where things like Figure 1 belong.

We use this section to demonstrate 1hs2tex. You could use examples to introduce the problem, they are easy to write using 1hs2tex.

```
 \begin{aligned} &zipWith::(a\rightarrow b\rightarrow c)\rightarrow [a]\rightarrow [b]\rightarrow [c]\\ &zipWith\; k\:[]&=[]\\ &zipWith\; k\: (x:xs)\: (y:ys)=k\; x\; y:zipWith\; k\; xs\; ys\\ &zipWith\; k\_&==error\; "lengths\; don't\; match" \end{aligned}
```

^{*}Title note

[†]Subtitle note

¹The page counts are for a denser two-column format. Scale appropriately

²http://hackage.haskell.org/package/lhs2tex

³The irony is that I setup this template, so I can avoid writing

1:2 Anon.

Fig. 1. Simply typed lambda calculus with explicit structural rules

But even it isn't related, you can (ab)use 1hs2tex, to write maths like it was Haskell. For example we can define a category to consist of following data [Awodey 2010] (your paper doesn't need to be about category theory):

- Objects: A, B, C
- Arrows: f, g, h
- For each arrow f there are given objects: dom f and cod f called the domain and codomain of f.
- ...

These data are required to satisfy following laws

Associativity:

$$f \circ (g \circ h) = (f \circ g) \circ h \tag{1}$$

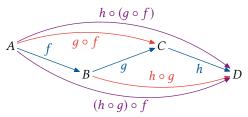
for all $f: A \to B$, $g: B \to C$, $h: C \to D$.

Unit

$$f \circ 1_A = f = 1_B \circ f \tag{2}$$

for all $f: A \to B$.

For further example, we can present associativity law as a diagram. The diagram below is made with a *MetaPost*⁴. You might consider using diagrams package⁵. Whatever tool you decide to use, reserve proper time to make your diagrams. "A picture is worth a thousand words" holds for information density for production time.



Next we'll test that cleveref works: Lemma 3.1 and Example 3.2.

Lemma 3.1 (Yoneda). Let C be locally small. For any object $C \in C$ and functor $F \in Sets^{C^{op}}$ there is an isomorphism

$$Hom(yC, F) \cong FC$$

which, moreover, is natural in both F and C.

⁴https://tug.org/metapost.html

⁵https://archives.haskell.org/projects.haskell.org/diagrams/

Short Title 1:3

Example 3.2. We can use Lemma 3.1 to derive Profunctor Optics [Boisseau and Gibbons 2018].

4 RELATED WORK

1-2 pages. There are various resources.

- ACM SIGPLAN Author Information http://www.sigplan.org/Resources/Author/ has a short
 Writing section.
- Simon Peyton Jones has a longer list on https://www.microsoft.com/en-us/research/academic-program/write-great-research-paper/#!other-resources.

5 CONCLUSIONS AND FURTHER WORK

Half a page.

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A SIMON'S SUGGESTIONS

We used some of *Seven simple, actionable suggestions* by Jones [2015], in this template. The all suggestions are:

- (1) **Don't wait: write**. Writing papers is a primary mechanism for doing research (not just for reporting it)
- (2) **Identify your key idea**. Your goal s to convey a useful, re-usable, clear and sharp idea.
- (3) **Tell a story**. Imagine you are explaining at a whiteboard.
- (4) Nail your contributions. Do not leave the reader to guess what your contributions are!
- (5) **Related work: later**. Problems with too early related work: The reader knows nothing about the problem yet; so your description of various technical tradeoffs is absolutely incomprehensible. Describing alternative approaches gets between the reader and your idea
- (6) **Put your readers first (examples)**. Introduce the problem, and your idea, using *examples* and only then present the general case.
- (7) **Listen to your readers**. Get your paper read by as many friendly guinea pigs as possible

There are various recodings of the presentation on YouTube, for example https://www.youtube.com/watch?v=WP-FkUaOcOM.

B DEREK'S PRINCIPLES

Dreyer [2016] gives seven conrete suggestions, which are different from Simon's.

- (1) **Old to new**. Begin sentences with old info. End sentences with new info.
- (2) **One paragraph, one point**. A paragraph should have one main point, expressed in a single *point sentence*.
- (3) Name your baby. Give unique names to things and use them consistently.
- (4) **Just in time**. Give information precisely when it is needed, not before

146 147 1:4 Anon.

(5) **CGI model for abstract/intro**. *Context*: Set the stage, motivate the general topic. *Gap*: Explain your specifc problem and why existing work does not adequately solve it. *Innovation*: State what you've done that is new, and explain how it helps fill the gap.

- (6) **Have a "main ideas" section**. Use *concrete illustrative examples* and high-level intuition. Do *not* have to show the general solution.
- (7) **Compare with related work at the end**. It goes at the end of the paper. Give real comparisons, not a "laundry list"!

There is a recording of the talk on YouTube: https://www.youtube.com/watch?v=PM1Atui30qU.