Some title

Someone

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Abstract

This is the paper's abstract ...

1 Introduction

1.1 What are numbers?

1.2 Positional numeral systems

Outline The remainder of the thesis is organized as follows.

2 A gental introduction to dependently typed programming in Agda

There are already plenty of tutorials and introductions of Agda[1]. Nonetheless, we will provide a simple and self-contained tutorial in this section, covering the part (and only the part) we need in this work.

Some of the more advenced constructions (such as views and universes) used in the following sections will be introduced along the way.

We assume that all readers have some basic understanding of Haskell, and those who are familiar with Agda and dependently typed programming may skip this chapter.

2.1 Some basics

[introduce some backgrounds of Agda]

2.2 Dependent types

2.3 Simply typed programming in Agda

Since Agda's syntax is heavily influenced by Haskell, simply typed programming in Agda is almost the same as in Haskell.

```
a = 3
```

> In the beginning there was nothing.
> "Let there be data types"

2.4 Dependently typed programming in Agda

3 Representing positional numeral systems

3.1 Bases

3.2 Offsets

3.3 Number of digits

4 Properties of Num

4.1 Categorizing Num

4.2 Views

5 Conclusions

References

[1] U. Norell. Dependently typed programming in agda. In *Advanced Functional Programming*, pages 230–266. Springer, 2009.