

# Discovering Namespaces in Mathematical Notation

Moritz, Alexey, Sergey, Marcus?, Howard, Volker

## ABSTRACT

While modern programming languages use name-spaces for means of modularity and expandability, mathematical notation has no such concept. However, in most scientific communities a standard notation for mathematics has been established. We claim that the sharing of notation corresponds to the taxonomic distance of the research fields. Nowadays, where digital communication plays a significant role in the transportation of concepts and ideas expressed using mathematical notion, we see advantages in using name-spaces for mathematical notation to reduce ambiguity and increase the widespread of ideas across community borders. In this paper, we extract identifier-definition-tuples from Wikipedia, and map them to classification sachems for mathematics and physics. Thereby, we get a hierarchy of identifier definition tuples for pairs. In addition, we investigate scientific articles from arXiv to test our method on a more specialized corpus.

## 1. MOTIVATION

### 1.1 The vision of namespaced Mathematics

Motivation and introduction goes here

## 2. BACKGROUND

Math meats information retrieval

Keep this section brief. Find additional references from other research fields like linguistics?

## 3. OUR METHOD

### 3.1 The Machinery for Namespace Discovery

Brief description of the tools

### 3.2 The Wikipedia Case Study

Result of the Master Thesis Fuse bilingual result.

### 3.3 Name spacing the ArXiv

Needs to be done. In general this follows the same pattern.

Discuss with Deyan Ginev to get the full HTML5 corpus.

See if clustering methods can cope with the data volume?

100M formula probably 1 billion identifiers.

## 4. RESULTS

## 5. DISCUSSION

### 5.1 Learning outcome: Namespaced Identifiers

Write evaluation

## 6. CONCLUSION

A long road ahead

Write future work

## 7. ACKNOWLEDGEMENT