

SOFTWARE TUTORIAL: CAP - CATEGORIES, ALGORITHMS, PROGRAMMING

SEBASTIAN GUTSCHE AND SEBASTIAN POSUR

ABSTRACT. CAP is a software project written in GAP that provides a categorical programming language and simplifies the implementation of categories on the computer. In this software tutorial we will learn how to implement computable categories by providing data structures for objects and morphisms as well as algorithms for the existential quantifiers in the defining axioms of a category. CAP provides a framework to organize such implementations and offers a vast set of generic algorithms in its ecosystem from which we can benefit once a category is implemented. Finally, we will show how to write your own categorical algorithms using the categorical programming language defined by CAP.

DEPARTMENT OF MATHEMATICS, UNIVERSITY OF SIEGEN, 57068 SIEGEN,
GERMANY

E-mail address: sebastian.gutsche@uni-siegen.de

DEPARTMENT OF MATHEMATICS, UNIVERSITY OF SIEGEN, 57068 SIEGEN,
GERMANY

E-mail address: sebastian.posur@uni-siegen.de