

Andrzej Trybulec

THE MIZAR PROJECT

Mizar is a formal language derived from the mathematical vernacular. The objective is to be as close as possible to the language used in mathematical papers and simultaneously to be able to verify automatically the correctness of an article written in Mizar. We want to be close to mathematical vernacular on the semantic level. We believe that this is not so important on the syntactical level. The syntax of Mizar is simplified, stylistic variants removed and instead of English words in some cases abbreviations are used. E.g. the syntax for the universal formula is

for *bound-variables* **holds** *scope*

and for the existential formula

ex *bound-variables* **st** *scope*

Natural deduction in Mizar is in Jaśkowski style, with so called *fixed variables*. These are local constants.

In Spring 1989 we started to collect articles written in Mizar. As yet we collected 227 such articles, written by more than 50 authors. This collection is called Main Mizar Library. So called abstracts of accepted to MML articles (those articles in which this part of the article that cannot be exported to other articles is removed) after automatic translation to English are published in *Formalized Mathematics*. The articles concern mostly the standard mathematical folklore (functions, binary relations), some of them are more advanced (the reflection theorem, the deduction theorem) and 5 include new mathematical results. The whole library started with two

axiomatic articles: one with axioms of Tarski-Grothendieck set theory, and the second one describing properties of built-in concepts, such as natural numbers.

*Institute of Mathematics
Warsaw University
Białystok Campus
Poland*