

Custom Automations in Mizar

Marco Bright Caminati · Giuseppe Rosolini

Received: 20 September 2011 / Accepted: 10 October 2012 / Published online: 1 November 2012
© Springer Science+Business Media Dordrecht 2012

Abstract The central aim of the Mizar project is to produce strictly formalized mathematical statements with mechanically certified proofs. When writing a Mizar formalization, a significant amount of the user's time typically goes into browsing the Mizar Mathematical Library (MML) for the already-proved results he needs. Here a few techniques to reduce this time are illustrated.

Keywords Mizar proof verifier · Formalization of mathematics · Automations · Proof assistant

Mathematics Subject Classifications (2010) 03B35 · 03F99 · 68T15

1 Introduction

The Mizar project (<http://www.mizar.org>) delivers a few provisions:

1. The Mizar *language* permits to write formulas in first-order set theory which read close to common mathematical language. For example, the formula

$$X \neq \emptyset \implies \exists x(x \in X)$$

is written

`X <> {} implies ex x st x in X;`

M. B. Caminati (✉)
Dipartimento di Matematica, Sapienza, Università di Roma,
Piazzale Aldo Moro 5, 00185 Roma, Italy
e-mail: marco.caminati@gmail.com
URL: <http://caminati.net.tf/>

G. Rosolini
DISI, Università di Genova, via Dodecaneso 35, 16146 Genova, Italy
e-mail: rosolini@disi.unige.it
URL: <http://www.disi.unige.it/person/RosoliniG/>