Helena Rasiowa

(1917–1994)

the insight from logic

by Damian Niwiński, University of Warsaw

Computer Science Logic 2022

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Note. A logician Heinrich Scholz from Münster tried to help his
Polish colleagues undre Nazi occupation, in particular Łukasiewicz.

Return of hope

1946   Helena reconstructs her thesis and returns to the university

1947   her first publication appears
*Axiomatisation d'un système partiel
de la théorie de la deduction*

Own path in logic

1950   PhD
*Algebraic treatment of the functional calculi
of Lewis and Heyting*
supervised by Andrzej Mostowski

1956   habilitation
Algebraic models of elementary theories and their applications

The mathematics of metamathematics

with **Roman Sikorski**, **1963**

From *Preface*:

The title of this book is not meant as a pun, although it may, at first sight, appear to be so.

. . .

By means of infinitistic methods the meaning of many basic metamathematical theorems is made clear.

. . .

It is surprising that the Gödel completeness theorem can be obtained, for example, as a result of the Baire theorem on sets of the first category in topological spaces, etc.

Continuation and offsprings

Algebraic approach to non-classical logics, **1974**, North Holland

The work had an impact on **categorical logic**,
and gave rise to the development of

- **algorithmic logic** (G. Mirkowska, A. Salwicki)
  $\longrightarrow$ logics of programs
- **logics for artificial intelligence**
  (E. Orłowska, Z. Pawlak, C. Rauszer, A. Skowron)

Sharing knowledge, sharing values

For undergraduates: *Introduction to modern mathematics*

over **20 PhD students**

Dean of the faculty (1958-1960, 1962-1966, 1968-1978)

Scientific community without borders

Fundamenta Informaticae (created with Z. Pawlak in 1977)

Stefan Banach International Mathematical Center
— meeting point of East and West

H. Rasiowa, Z. Pawlak, Mrs. Trakhtenbrot, C. Rauszer, B. Trakhtenbrot

Helena Rasiowa's heritage in logic in computer science

- ► algebraic and categorical logic
- ► logics of programs
- ► Warsaw groups in TCS

Thank you