Some Favourite Constructive Theorems of Mine

Douglas S. Bridges,

School of Mathematics & Statistics,
University of Canterbury,
Christchurch, New Zealand

Retirement presents an ideal opportunity for reflection on one's professional life. In this talk I reflect on my work in a number of areas of Bishop-style constructive mathematics (**BISH**)—that is, mathematics with intuitionistic logic and an appropriate set- or type-theoretic foundation.

The key feature of **BISH** is its systematic use of intuitionistic logic, which captures formally the essence of the constructive proof–development process and enables one to work in the normal style of, for example, an analyst or an algebraist. Every proof in **BISH** is essentially an algorithm, and the proof itself can be read as proof that the algorithm contained in it meets its specifications. (Several computer-science groups have extracted and implemented those algorithms for parts of analysis.)

Among the areas discussed in the talk are:

- complex analysis
- approximation theory
- measure and integration
- functional analysis
- topology via apartness
- mathematical (micro)economics—preference, utility, demand
- constructive Morse set theory (an ongoing project).

References

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