

litical, racial, and social differences and focuses on a universal human interest will be an influence for conciliation and peace. But the Congress is, after all, just a meeting of mathematicians. Let us get about our business.

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Michèle Audin
Institut de Recherche Mathématique Avancée
Université de Strasbourg et CNRS
France
Email: Michele.Audin@math.u-strasbg.fr

On the Grossone and the infinity computer

The mass media announced on 3 November 2010 that Yaroslav Sergeyev, a professor of Calabria University and Lobachevsky State University of Nizhny Novgorod, had received the Pythagoras Award. It was mentioned that “the professor constructed and patented a new ‘Infinity Computer’” and “he suggested a new mathematical language that enables one to record various infinitely large and infinitely small numbers”. This information deserves comment.

Sergeyev’s idea is to introduce into arithmetic some infinitely large number, a grossone, consider only the numbers that are less than the grossone and operate exclusively on these numbers using the grossone as the radix. Sergeyev embellishes his idea with metaphysical arguments, emphasising that he does not use Cantor’s approach and returns to the Ancient Greeks.

Elliot Mendelson remarked in his review of Sergeyev’s book [1] that “the systems he deals with consist of objects which are called extended real numbers, but the descriptions of these objects and their properties are not clear enough to permit any warranted judgments about the assertions made by the author about these systems”.

Sergeyev confronts his ideas with the nonstandard analysis of Abraham Robinson, defining his grossone as “the number of elements of the set of natural numbers”. In fact, the role of this would-be mysterious entity can

happily be performed by the factorial of an arbitrary infinite number, which are abundant in nonstandard analysis. The principal shortcomings of Sergeyev’s approach and attempts at implementing calculations with a grossone on a computer were given in [2]. Unfortunately, the series of Sergeyev’s publications continues in the various international journals having little if anything in common with the foundations of analysis. Miraculously, none of Sergeyev’s publications on his grossone are in Russian.

Ancient Italian grossones are linguistically close to Sergeyev’s grossone but differ in value.

References

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S. S. Kutateladze
Sobolev Institute of Mathematics
Novosibirsk, Russia
E-mail address: sskut@math.nsc.ru

Response to Professor Haggstrom’s review of “In defence of objective Bayesianism”

Olle Haggstrom wrote a detailed but negative review of my recent book “In defence of objective Bayesianism” for the last issue of this newsletter. Fortunately Haggstrom’s concerns are rather straightforward to address and I hope that by presenting responses to his concerns here, the reader will have a more balanced view of the book.

The book sets out to defend *objective Bayesian epistemology*, which is a theory about how strongly we should believe the various propositions we can express. According to this theory, the strengths of one’s beliefs should be representable by probabilities, should be calibrated with empirical probabilities where known, and should otherwise equivocate between the basic possibilities that one can express. (It is this latter *equivocation* norm that sets objective Bayesianism apart from other versions of Bayesian epistemology.) At least on finite spaces, entropy is a natural measure of the extent to which a probability function equivocates, so the theory is often fleshed out by appealing to the *maximum entropy principle*: the strengths of one’s beliefs should be representable by a probability function, from all those that are calibrated with evidence, that has maximum entropy. Objective Bayesianism has