hence

$$\frac{j^p - j \quad (p-j)^p - (p-j)}{p} = ja_j p \quad jr_j \quad (p-j)a_{p-j}p \quad (p-j)r_{p-j}$$

We obtain

$$\frac{j^p \quad (p-j)^p}{p} = ja_j p \quad jr_j \quad (p-j)a_{p-j}p \quad (p-j)r_{p-j} \quad 1$$

Because

$$j^p \quad (p-j)^p = \begin{matrix} p \\ 0 \end{matrix}\Big)p^p - \begin{matrix} p \\ 1 \end{matrix}\Big)p^{p-1}j \qquad \begin{matrix} p \\ p-1 \end{matrix}\Big)pj^{p-1},$$

we obtain that $p^2 \mid j^p \quad (p-j)^p$ and we get for all $j = 1, 2, \quad , p-1$,

$$jr_j \quad (p-j)r_{p-j} \quad 1 \equiv (mod\ p)$$

Adding up all these relations it follows that

$$2(r_1 \quad 2r_2 \qquad (p-1)r_{p-1}) \equiv -(p-1)(mod\ p),$$

hence

$$r_1 \quad 2r_2 \qquad (p-1)r_{p-1} \equiv \frac{p \quad 1}{2}(mod\ p)$$

Remark: Problem 60 was also solved by W. Fensch (Karlsruhe, Germany).

We wait to receive your solutions to the proposed problems and ideas on the open problems. Send your solutions both by ordinary mail to Themistocles M. Rassias, Department of Mathematics, National Technical University of Athens, Zografou Campus, GR-15780, Athens, Greece, and by email to trassias@math.ntua.gr.

We also solicit your new problems with their solutions for the next "Solved and Unsolved Problems" column, which will be devoted to *Real Analysis*.

Letters to the Editor

This section is open to the opinions of readers of the Newsletter. For sending a letter for publication in this section, please contact any member of the Editorial Committee.

Opinions expressed in the section *Letters to the Editor* are those of the authors and do not necessarily reflect the policies and views of the EMS. Letters from readers appearing in the Newsletter are published without change.

An American visa for Jacques Hadamard, ICM 1950 and Henri Cartan

I was quite surprised when I read, in the *Newsletter* of December 2008, in the obituary of Henri Cartan written by Jean-Pierre Bourguignon [1]:

> *The visa application Laurent Schwartz had made to attend the ICM where he was to receive the Fields Medal had been set aside by the U.S. Embassy in Paris. In order to exert maximum pressure, Henri Cartan collected the passports of all the French ICM participants and threatened that there would be no French participation if Schwartz was not allowed to enter the United States.*

I considered the idea of writing to Jean-Pierre to mention that this was erroneous, but it seemed to me that it was so much a well-known history that somebody else would have already told him and that a correction would appear. Then the very same text appeared in the September 2010 of the *Notices of the AMS*, with the same error(s). I thus decided to send a mail to Jean-Pierre, in which I wrote:

> *I was very surprised to read the paper "Cartan, Europe and Human rights" in the September issue of the* Notices*. In the second column, the information on ICM 1950 seems to be erroneous.*
> *It is true that Cartan (who was the president of the SMF this year) collected (not the passports but) the boat tickets of (not all but several of) the French participants. But this was not because Laurent Schwartz could not get his visa (there had been a problem with this visa, but this was solved), but rather because Jacques Hadamard, who was 85, a vice-president of the Congress, and had spent the wartime in the States, was now considered a dangerous communist and could not get a visa.*

Jean-Pierre thanked me for pointing out the error and told me that he had based the story on something Henri Cartan (not very young) told him. I then wrote a letter to the editors of the *Notices* – after all, this is more about American history than about France, or Europe…

Well… So what am I doing here? The aim of this short paper is neither to discuss the fact that "B tells A" is not the same as "A", nor to insist on the fact that "C thinks

to remember that B told him A" is also a different issue. This is rather to understand how it was possible that nobody noticed there was a mistake.

Let us go back to the preparation of the ICM in Cambridge in (1949–)1950. The previous International Congress was held in Oslo in 1936 and it was decided there that the next one, in 1940, would take place in the US. Of course there was no International Congress in 1940. Even in 1950, it was quite a challenge to organise a truly international event. Many questions had to be solved. It was not very long ago, only thirty years, that the French had organised an "International Congress" without any German mathematician (in Strasbourg and in 1920) and the disastrous boycott of German mathematicians after the first world war had not been forgotten.

Not very surprisingly, except for a few Yugoslavian mathematicians, no East-European or Soviet mathematicians participated in the Cambridge Congress.

But one of the main problems the American Mathematical Society, in charge of the organisation, had to face was a purely American one, namely the McCarthyism and Witch-Hunt in the States. It is not the place here to discuss the many (awful) effects this policy had on life in America. The point here is that it had some consequences on the organisation of the Congress. Let us come back to the mathematicians mentioned at the beginning of this paper.

Laurent Schwartz. He was 35 and was to be awarded a Fields Medal for having created the theory of distributions. Hence he was a young man, had never travelled to the States, and he was a Trotskyist. Hence he was dangerous. It was not that easy, but he succeeded getting an American visa, a few months before the Congress, after the personal intervention of President Truman himself (according to Schwartz in his Mémoires [4]).

But the real problem was not Laurent Schwartz's visa, but Jacques Hadamard's.

Jacques Hadamard. He was 85 and was invited to be one of the honorary presidents of the Congress. He was a very well-known mathematician. Moreover, he was especially well-known in the States, for example because he had spent some time there during the German Occupation of France (he was threatened by the French anti-Semitic legislation and had to leave France). It seems that he did not take advantage of his presence on the American soil to develop anti-American activities during this period, he did not try to murder the President, but one never knows… the State Department decided not to give him a visa. The reason was that this nice old man[1] was a dangerous communist – he was not a member of the Communist Party but had indeed some sympathy for it, and his daughter Jacqueline was a member.

Unbelievable. Well, this is the point where we should start the discussion mentioned above – about "C believes that B told A". The point is that the idea that old Jacques Hadamard could have been considered dangerous to US security is simply unbelievable.

However, this is the truth. And this is a reason why we should care for history. As unbelievable as these things seem to be, they happened and they can happen again.

Henri Cartan and the visa problem. Now you probably want to know what happened and how it happened. Henri Cartan, who was 46 and was one of the invited plenary speakers of the Congress, was also the President of the Société Mathématique de France (SMF) this year. He was also a lot of other things, but we shall concentrate on that. Under his impulsion, the SMF proposed to threaten to boycott the Congress. This was not very well accepted by the AMS and was not accepted by all the French participants either. But most of the French followed Cartan and the SMF, and the AMS did its best to help. The French people were supposed to all take the same liner of the Cunard Line.

The ultimatum Cartan gave the Americans was to expire on 30 July; this was the extreme limit to confirm the tickets or not. It was only very late on 26 July that the State Department eventually decided to give the visa, so that Cartan was informed by a telegram which arrived on the 27 July. He was on vacation in his family house in Die, in the South of France. He went to the Post Office and sent telegrams, first to the Cunard Line, then to J. R. Kline (who was the Secretary of the Congress and was very active in the US trying to obtain the visa), then to Jacques Hadamard and the twelve other French mathematicians who were waiting to know whether they would go or not.

And then he went back to mathematics and started preparing his talk *Problèmes globaux dans la théorie des fonctions analytiques de plusieurs variables complexes* for the Congress.

The Congress was opened on 30 August by an address delivered by Oswald Veblen, who reminded the audience of what had happened since the Oslo 1936 Congress, including the absorption by the US of a large number of European mathematicians fleeing Nazi Germany (and Europe). He then said:

> *We are holding the Congress in the shadow of another crisis, perhaps even more menacing than that of 1940, but one which at least does allow the attendance of representatives from a large part of the mathematical world. It is true that many of our most valued colleagues have been kept away by political obstacles and that it has taken valiant efforts by the Organizing Committee to make it possible for others to come.*[2]
> *[…]*
> *To our non-mathematical friends we can say that this sort of a meeting, which cuts across all sorts of po-*

[1] On Jacques Hadamard, see [3].

[2] Surprisingly enough, none of the political problems encountered in the preparation of the Congress and to which Veblen alluded to are mentioned in the book [**2**] on the history of the IMU – although there is in this book a long chapter devoted to the political problems of the period 1979–86.

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.

References

[1] J.-P. Bourguignon, R. Remmert & F. Hirzebruch – "Henri Cartan 1904–2008", *European Mathematical Society Newsletter* 70 (2008), p. 5–7.

[2] O. Lehto – *Mathematics without borders*, Springer-Verlag, New York, 1998, a history of the International Mathematical Union.

[3] V. Maz'ya & T. Shaposhnikova – *Jacques Hadamard, A Universal Mathematician*, American Mathematical Society and London Mathematical Society, 1998.

[4] L. Schwartz – *A Mathematician Grappling with His Century*, Birkhäuser, Boston, 2001, translated from the French by Leila Schneps.

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 hav-ing 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

[1] Sergeyev Ya. D., *Arithmetic of Infinity*. Edizioni Orizzonti Meridionali, Cosenza (2003).

[2] Gutman A. E. and Kutateladze S. S. "On the theory of grossone." *Siberian Math. J.*, 49:5, 835–841 (2008).

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