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The seventieth anniversary of Professor Josef Novák

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NEWS and NOTICES

THE SEVENTIETH ANNIVERSARY OF PROFESSOR JOSEF NOVÁK

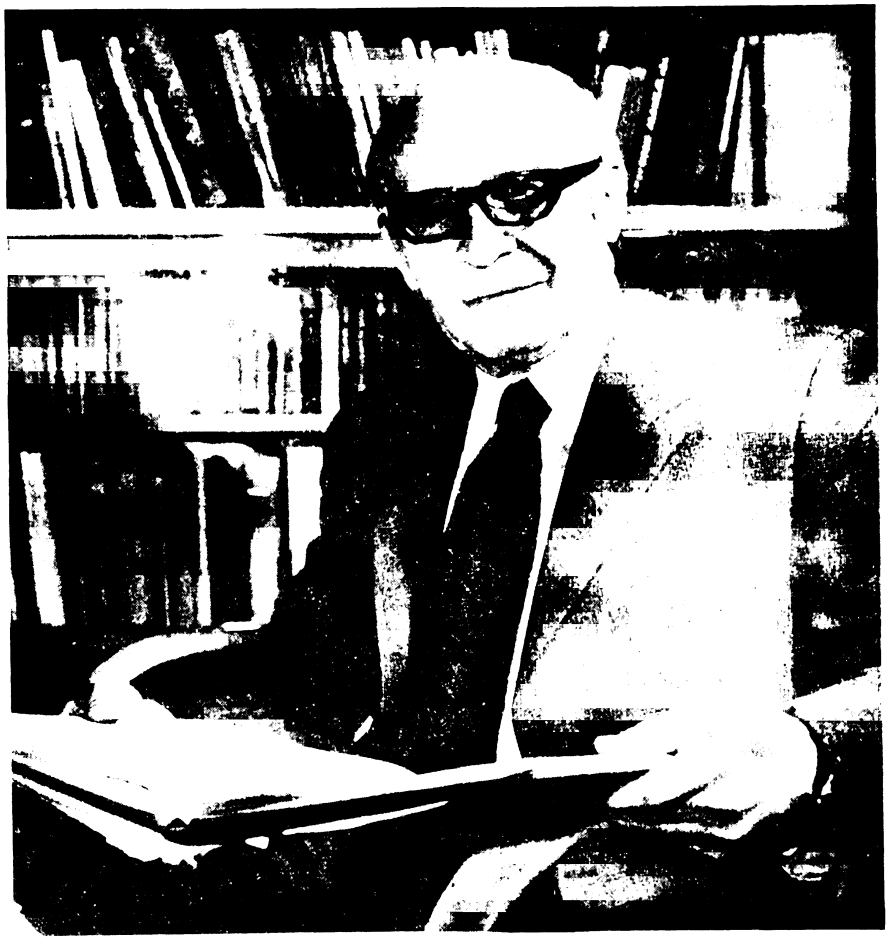
ZDENĚK FROLÍK, FRANTIŠEK ZÍTEK, Praha

Professor JOSEF NOVÁK, a member of the Czechoslovak Academy of Sciences, director of the Mathematical Institute of the Academy, chairman of the Scientific Board for Mathematics and chairman of the Union of Czechoslovak Mathematicians and Physicists, was 70 on April 19, 1975. We would like to take this opportunity to offer Professor Novák our congratulations and to wish him the greatest success in personal life, his research, as well as in his work on behalf of the Czechoslovak matematical community.

Ten years ago, a detailed account of Professor Novák's life and his scientific, educational and organizational activities appeared in Časopis pro pěstování matematiky (the Journal for the Cultivation of Mathematics) on the occasion of Professor Novák's 60-th anniversary. Since then, Professor Novák has intensified his important and thorough activity so that these ten years represent without doubt one of the most fruitful periods in his life. However, Professor Novák held various offices in the Czechoslovak Academy of Sciences and in other scientific institutions even earlier. Nevertheless, it was particularly in recent years, when the situation in Czechoslovak mathematics was complicated by external problems involving the whole of society, that Professor Novák devoted himself fully to dealing with important problems related to the development of science.

Professor Novák has been connected with the Mathematical Institute of the Czechoslovak Academy of Sciences from the very beginning. For many years he was head of the Department of Probability and Mathematical Statistics. He succeeded in balancing theoretical research in this field – he was personally particularly interested in its topological foundations – with its practical application in agriculture, biological and medical research. J. Novák was interested in Genetics of Populations, particularly in theoretical problems related to selection coefficients. When he was appointed director of the Mathematical Institute in 1971, he brought to the office a rich fund of knowledge and experience, and ability for firm but sensitive leadership. These qualities were invaluable in helping the Institute through the difficult period.

The Czechoslovak Academy of Sciences has benefited from Professor Novák's abilities almost without a break since its foundation. The chairmanship of the



Professor JOSEF NOVÁK

Scientific Board for Mathematics, held by Professor Novák since 1966, is the most important within the Czechoslovak mathematical community. However, Professor Novák's activity has not been limited to the Academy. He has been a member of scientific boards of various institutes and schools, a member or chairman of several committees for doctoral and post-doctoral dissertations, a member of the Czech State Committee for Scientific Degrees, etc.

Professor Novák's participation in the organization and administration of the State Research Program is also of great importance. Since 1970 he has been chairman of the committee which is in charge of practically all research work in theoretical mathematics in Czechoslovakia. In this capacity, he has demonstrated his ability to accommodate different points of view and interests, thus making possible harmonious progress in mathematical research.

Last but not least, in recent years Professor Novák has been active in the Union of Czechoslovak Mathematicians and Physicists. He was a member of its Central Committee from 1962 to 1969, then he was a member of the Central Committee of its Czech section, and in 1972 he became chairman of the Union. He has contributed considerably to the revitalization of the Union. The success of both mathematical conferences recently held by the Union at Olomouc (1973, Application of Mathematics) and Ostrava (1974, State Research Program), was in large measure due to his personal effort and devotion.

He has also served in a number of international institutions as chairman of the Czechoslovak National Committee for Mathematics, he has cooperated for many years with the International Mathematical Union, representing Czechoslovakia at several Union congresses. Since 1966 he has been a member of the International Committee for Mathematical Instruction.

In 1972, Professor Novák was appointed member of the United Nations Advisory Committee for the Application of Science and Technology to Development. In the same year, Professor Novák, who had taken part in the preparations for the foundation of the S. Banach International Mathematical Centre in Warsaw, became a member of its Scientific Board as a representative of the Czechoslovak Academy of Sciences.

In spite of all these activities, Professor Novák has found time for his own research work. Let us recall that J. Novák has worked chiefly in general topology in a field closely related to the classical theory of sets, and that he was one of the most active members of the famous seminar of general topology directed by Eduard Čech in Brno before the Second World War. His ingenious and surprising constructions have a wider significance. For example, the constructions of a regular space on which every continuous function is constant, and of a non-countably-compact product of two countably compact spaces seem to have had a considerable influence on progress in topology.

In the last 10 years, J. Novák has published about 10 papers, dealing mainly with the further development of the theory of sequential spaces aiming at a more general

model for probability fields. Technically, J. Novák built the theory of groups and algebras endowed with convergence, the algebraic operations being continuous with respect to the convergence. A fundamental example of a sequential algebra is that of the algebra of subsets of a given set; the group operation is the symmetric difference, multiplication is the intersection and the convergence structure is the set convergence of sets (i.e., $A = \lim A_n$ if and only if $A = \liminf A_n = \limsup A_n$). The fact that σ-additivity is for probabilities equivalent to sequential continuity is used. It is very difficult to clarify the most fundamental points; for example, it is not possible to use the experience concerning the theory of topological groups or uniform spaces. After all, it is well-known that the sequential approach is very natural but always involves specific and difficult problems.

Professor J. Novák analysed fundamental definitions, introduced the notion of a completion (which is not a reflection, e.g., it is not uniquely determined) and formulated problems which seem to be highly complicated, for example, it is not clear when a "uniformly" continuous bounded function can be extended to the completion. Professor Novák's students R. Frič (Ph. D. 1972) and P. Kratochvíl (Ph. D. 1975) have followed this line of research.

The theory of sequential groups, fields, algebras and sequential uniform spaces is still developing, which is why we omit an analysis of individual papers and refer the reader directly to the papers [50, 53, 54, 56].

We should mention the last paper [57] in which the cardinality of the set of accumulation points of a totally divergent sequence (no subsequence converges) is estimated from below by a certain characteristic of $\beta N - N$ (which has already appeared in a paper as the "Novák number"), and it is proved without any set-theoretical assumptions that this characteristic is greater than $\aleph_1$.

Professor J. Novák was an enthusiastic chairman of the Organizing Committees of the three Prague Symposia on General Topology and its Relations to Modern Analysis and Algebra held in 1961, 1966 and 1971. The significance of these Conferences, particularly of the first one, for Czechoslovak mathematics and international cooperation was not limited to Topology.

Professor Novák's interests in mathematics are not limited to purely scientific work. We can mention for example his continuous support of the all-state mathematical competition for secondary school pupils: the "Mathematical Olympiad". For almost as long as this competition has been going on, Professor Novák has been a member of its organizational committee, he was its chairman till 1966 and he succeeded in involving many other members of the Mathematical Institute in this work.

Quite naturally, Professor Novák's interest in the "Mathematical Olympiad" is connected with his general interest in mathematical education. Professor Novák has recognized the importance of all stages of mathematical education for the development of mathematics and therefore has done his best to encourage research in the theory of mathematical education, particularly in the group for the modernization of mathematical education in the Mathematical Institute.

Professor Novák's contributions to science and society have been recognized by various distinctions. In 1965 he was awarded the Order of Labour and in 1970 the Bolzano Golden Plaque. In 1968 he was presented a golden plaque and in 1973 a memorial plaque on behalf of the Palacký University at Olomouc. This year, on the occasion of his 70th anniversary, the Czech Technical University has awarded Professor Novák the Golden Felber Medal.

APPENDIX TO THE LIST OF SCIENTIFIC PUBLICATIONS OF PROFESSOR J. NOVÁK[2])

[45] On convergence spaces and their sequential envelopes. Czechoslovak Math. J. *15* (*90*) (1965), 74—100.

[46] Eine Bemerkung zum Begriff der topologischen Konvergenzgruppen. Simposio di Topologia (Messina, 1964). Edizioni Oderisi, Gubbio, 1965, 71—74.

[47] O vlivu selekce monohybridů na genové složení potomků. Živočišná výroba, special issue *1*, 1965, 169—188.

[48] a) On a convergence topological ring of couples of disjoint sets. Nachr. Österreich. Math. Gesellsch. *19* (*79*) (1965), 50.
b) Extension theory of convergence structures and its application to probability theory. Contributions to Extension Theory of Topological Structures (Proc. Sympos., Berlin, 1967). Deutsch. Verlag. Wissensch., Berlin, 1969, 171—172.

[49] On topological convergence rings. Atti del' VIII Congresso dell'Unione Matematica Italiana (Trieste, 1967), Bologna, 1968, 417—418.

[50] On sequential envelopes defined by means of certain classes of continuous functions. Czechoslovak Math. J. *18* (*93*) (1968), 450—456.

[51] On some topological spaces represented by systems of sets. Proc. Internat. Sympos. on Topology and its Applications (Herceg-Novi, 1968). Savez Društava Mat. Fiz. i Astronom., Belgrade, 1969, 269—270.

[52] On probabilities defined on a certain class of non-Boolean algebras. VII. Österreichischer Mathematikerkongress (Linz, 1968). Nachr. Österreich. Math. Gesellsch. *23* (*91*) (1970), 89—90.

[53] On convergence groups. Czechoslovak Math. J. *20* (*95*), (1970), 357—374.

[54] On some problems concerning the convergence spaces and groups. General Topology and its Relations to Modern Analysis and Algebra (Proc. Conf., Kanpur, 1968). Academia, Praha, 1971, 219—229.

[55] On some topologies defined by a class of real-valued functions. General Topology and Appl. *1* (1971), 247—251.

[56] On completions of convergence commutative groups. General Topology and its Relations to Modern Analysis and Algebra, III (Proc. Third Prague Topological Sympos., 1971). Academia, Praha, 1972, 335—340.

[57] a) On side points in compact Hausdorff spaces. Proc. Internat. Sympos. on Topology and its Applications (Budva, 1972). Savez Društava Mat. Fiz. i Astronom., Beograd, 1973, 184.
b) On side points in compact Hausdorff spaces. General Topology and Appl. (to appear).

[2]) Czech. Math. Journal *15* (*90*) (1965), 316—318.