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IN MEMORIAM OF PROFESSOR JOSEF NOVÁK

Roman Frič and Darrell C. Kent

On August 12, 1999, the nestor of Czech mathematicians Professor Josef Novák passed away at the age of 94.

Internationally, he was recognized through his mathematical achievements and his chairmanship of the first five Prague Topological Symposia (1961 - 1981). He also served as a member of the International Commission for Mathematical Instruction of IMU (1966 - 1974), and the UN Advisory Committee on the Application of Science and Technology to Development (1972 - 1976).

At home, his activities covered pure and applied research, education ranging from Mathematical Olympiad to supervising PhD. students, organizational work within the Czechoslovak Academy of Sciences and the Union of Czechoslovak Mathematicians and Physicists.

Biographical data and evaluations of the scientific work of Professor Novák covering years 1905 - 1985 can be found in a series of articles published in the Czechoslovak Mathematical Journal and elsewhere on the occasions of his anniversaries ([1], [2], [3]).

Professor Novák remained mathematically active all his life. In 1987 he took part in the Oberwolfach meeting devoted to convergence in topology, the central topic of his research, and in 1991 he attended the International Conference in Memory of Felix Hausdorff in Berlin. At both conferences he presented impressive lectures filled with fresh ideas and new problems. He submitted his last paper in 1995. It is devoted to products of Frèchet spaces and, besides other results, it contains a necessary and sufficient condition for the topological product of two compact Hausdorff Frèchet spaces to be a Frèchet space ([N]).

Social and political conditions in Central Europe during the lifetime of Josef Novák underwent considerable changes. He was born in the Austro-Hungarian Monarchy, got his higher education and started his mathematical career in Czechoslovakia, lived and worked there during turbulent times when different armies and ideologies marched through his homeland forth and back, and his fruitful life was completed

in Czech Republic. He was born on the Czech side of the Morava river, but many of his students, colleagues and friends lived and live on the Slovak side of the river. It is not our purpose, or within our capabilities, to evaluate the impact of these momentous world events upon the life of Professor Novák, but rather to pay tribute to him as a mathematician and to extrapolate some of his ideas about convergence and topology.

Since a sequentially continuous map need not be continuous, topological spaces do not provide a natural category to study sequential convergence. Following his habilitation thesis (Sur les espaces ($\mathcal{L}$) et sur les produits cartésiens ($\mathcal{L}$), published in 1939), Professor Novák devoted much of his research activity to sequential continuity. Certainly, he became a renowned expert in this area of general topology and his influence is evident when reading the Proceedings of a number of specialized international conferences held in the last four decades of this century (cf. [4]). A strong motivation for intensive research and development of sequential structures came from probability. For a bounded additive measure on a ring of sets sequential continuity is equivalent to countable additivity. Each such measure, hence in particular a probability measure, can be uniquely extended to a sequentially continuous measure on the generated sigma-ring and, in a natural way, the generated sigma-ring is the maximal domain of extension. This idea led to two related lines of research: 1. convergence algebras (groups, rings, etc, carrying a compatible convergence in terms of sequences or filters), their classification, and a suitable completion theory; 2. convergence spaces, their classification, and a suitable theory of extension of continuous maps. Let us stress that the results of Professor Novák and others in the two directions have contributed to the mathematical foundations of probability (cf. [5]) and the understanding of the relationship between sequential and filter convergence structures (cf. [6], [7], [8], [9]). Sequential convergence and sequential continuity are usually more natural in analysis and probability, while filter convergence structures behave better from the viewpoint of category theory. The extension of sequentially continuous measures initiated by Professor Novák has developed into the theory of sequential envelopes. The extension process can be best described in the categorical terminology as an epireflection. As claimed already in 1961 (before the birth of categorical topology), it is a construction of the same nature as the Čech-Stone compactification (and the Hewitt realcompactification) - certainly a good companionship.

During his long life, Professor Novák met and influenced many people, and so we speak for many when we express our thanks, respect, and admiration to him as a teacher, colleague, mathematician and friend.

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