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by

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On Saturday March 19th, 1983, Jacob Kofner gave a talk, Extensions of Lasnev Theorems [14], at the Spring Topology Conference, for which these Proceedings are the journal of record. He died, at age 36, on the following Wednesday, March 23rd. Although Jacob had been warned that he suffered from a debilitating and sometimes fatal disease, the dates above give some idea of the extent to which Jacob's death caught his friends and colleagues by surprise. Jacob will be missed by us all, and what is particularly saddening is that Jacob's death came just as he appeared to be successfully settled in at George Mason University.

Jacob Kofner's mathematical interests lay in several seemingly disparate areas of generalized metric spaces: Symmetrizable spaces, quasi-metrizable spaces, semi-stratifiable spaces, orthocompact spaces, and transitive spaces. Jacob's earliest work concerned a result of A. V. Arhangel'skii [Soviet Math. Dokl. 6 (1965), 1187-1190]. Arhangel'skii had shown that each pseudo-open π-image of metrizable space admits a weakly Cauchy symmetric. Jacob's first two papers established the converse of Arhangel'skii's result and gave an example of a functionally Hausdorff symmetrizable space that admits no weakly Cauchy symmetric. Subsequently, Jacob showed that a zero-dimensional completely regular symmetrizable space need not admit a weakly

Cauchy symmetric [6]. In [6], Jacob also established the result, which had been obtained by D. Burke [Proc. Amer. Math. Soc. 33 (1972), 161-164], that a semi-metrizable space admits a weakly Cauchy symmetric, and so, as both Burke and Kofner observed, can be characterized as a space that is the pseudo-open π-image of a metrizable space.

The new class of spaces to which Jacob referred in his title to [1] were the spaces that he called pseudo-stratifiable spaces and that were called semi-stratifiable spaces by G. Creede [Pacific J. Math. 32 (1970), 47-54]. The following excerpt from a letter by P. Alexandroff, written to I. Parovichenko when Jacob had only his Master's degree, indicates the import of Jacob's new class of spaces.

> I was impressed by the system of results built by Kofner around a new and apparently helpful concept of pseudo-stratifiable space (in particular the theorem: A space is semi-metrizable if and only if it is first countable and pseudo-stratifiable) . . . I would like to inform you that, in addition to Kofner's notes referred by me six months ago to Dan SSSR, I have also decided to recommend two of his articles for publication in the Polish journals Fund. Math. and Bull. Akad. Nauk. Without doubt these papers will arouse great interest . . .

On the basis of Alexandroff's recommendation, Parovichenko accepted Jacob as a Ph.D. student. Although Jacob prepared a Ph.D. thesis under Parovichenko's direction, this thesis was never submitted because of Jacob's decision to emigrate to Israel.

Jacob's interest in generalized metric spaces was diverted from semi-stratifiable spaces and symmetrizable spaces to quasi-metrizable when Jacob reviewed R. Stoltenberg's paper, On Quasi-metric Spaces [Duke Math. J. 36 (1969), 65-71]. Stoltenberg had asked if every Moore space is quasi-metrizable, and in the review of Stoltenberg's paper Jacob provided an example of a non-quasi-metrizable Moore space [3]. Jacob's further contributions to the theory of quasi-metrizable spaces were both fundamental and vast. Fortunately, Jacob, himself, surveyed his work in this area [10], and so it suffices to consider here only Jacob's most famous quasi-metric space, the Kofner Plane.

It may appear presumptuous to associate Jacob's name with a topology on the plane that is, after all, a simple and natural modification of the topology of the Niemytzki Plane (=Moore Plane). The name, Kofner Plane, however, is justified, not by Jacob's definition of this space, but rather by his having discovered its fundamental properties. In establishing that the Kofner Plane is an orthocompact quasi-metrizable space that admits no σ-interior-preserving base, Jacob displayed dazzling geometric insight, and, despite a few distracting misprints, the translation of his paper, "On Δ-metrizable Spaces" [5], provides an accessible paper of considerable depth, which shows that general topology is rooted in geometry.

Just as the example given in the review of Stoltenberg's paper led Jacob to the study of quasi-metrizable spaces, it was his invention of the Kofner Plane that led him to his last major area of interest the study of orthocompact and transitive spaces. A space is transitive provided that each of its normal neighbornets contains a transitive neighbornet. In light of the properties of the Kofner Plane mentioned above, it is evident that the Kofner Plane is not a transitive space; in fact this space is essentially the only non-transitive space in the literature. Curiously, however, classes of spaces that are transitive are also hard to find. Although Jacob's example in [3] is a transitive Moore space that is not orthocompact, his results from [11] and [12] that every space with an orthobase is transitive and that every generalized ordered space is transitive suggest that there is a relationship between orthocompactness and transitivity that is not yet well understood.

In a sense no one's mathematical career is complete, but Jacob's mathematics was cut off, and so he has left unanswered more than the usual number of questions. Some are straightforward: Is every Moore space transitive? Some are esoteric: Is every nth power of each quasi-metrizable generalized ordered space n^+-transitive [13]? But taken as a whole Jacob's questions should provoke us to complete his work, and the completion of Jacob Kofner's work will be a far better memorial to him than what is written here.

Peter Fletcher

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