

In this bachelors's thesis we study the problem of k -bounded flows, i.e. flows which can be decomposed to flow paths of length bounded by a constant k . We review some known results in this field of study and we mention also the problem of k -bounded cut, which is a subset of edges from the flow network s. t. the flow network without these edges does not have any k -bounded flow. The main aim of this thesis is a detailed explanation of the article The Maximum k -flow in a Network written by V. Koubek a A. Říha, published as a conference paper in Mathematical Foundations of Coputer Science 1981, pages 389-397, providing an explanation of complicated passages and completion of some of the main proofs which are ommited in the paper mentioned above. The aim of completing proofs is not accomplished due to finding a serious mistake in the conference paper. Instead of completing proofs we provide a description why the algorithm in the paper does not work.