CONCERNING EXTENDABLE CONNECTIVITY FUNCTIONS, A CONTINUATION

By Jerry Gibson

This talk will be a continuation of the talk given last year at the Ninth Symposium, [4]. But first we give a brief review.

In the classic paper [14], J. Stallings asked the following question: "If $I = [0,1]$ is embedded in I^2 as $I \times 0$, can a connectivity function $I \to I$ be extended to a connectivity function $I^2 \to I$?" Negative answers were given to this question by Cornette [3] and Roberts [13]. Each constructed a connectivity function $I \to I$ that is not an almost continuous function.

Definition 1. Let $f:X \to Y$ be a function. Then

(1) f is an almost continuous function provided that every open set containing the graph of f contains the graph of a continuous function with the same domain;

(2) f is a connectivity function provided that if C is a connected subset of X, then the graph of f restricted to C is a connected subset of $X \times Y$; and

(3) f is a peripherally continuous function provided that if $x \in X$ and U and V are open subsets of X and Y containing x and f(x), respectively, then there exists an open set W such that $x \in W \subset U$ and $f(bd(W)) \subset V$ where bd = boundary.