THE PSEUDO-ARC AS AN INVERSE LIMIT WITH ONE BINDING MAP

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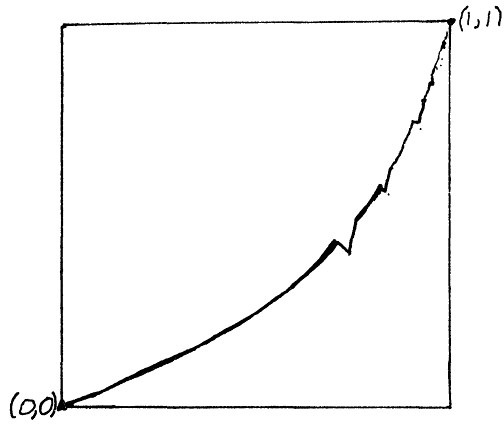
Although the pseudo-arc has been studied rather extensively, there are many open questions concerning it. Perhaps part of this difficulty is due to the lack of methods for its construction. In fact, only two types of methods have been suggested. The first was the "methode des bandes" of B. Knaster [3] or chains of E. E. Moise [4] and R. H. Bing [1]. The second was inverse limit systems on arcs. However, inverse limits has seen little use as the description of the binding functions were restatements of a chain construction, involved infinitely many different functions and thus at least as complicated as chains to use.

In this paper a function is described such that the inverse limit system using it as the sole binding function is a pseudo-arc. Surprisingly, the function is rather simple. Its construction may be described roughly as starting with $g(x) = x^2$ and notching its graph with an infinite set of non-intersecting v's which accumulate at (1, 1). (see fig.)



In fact, through the use of any of the well-known methods which "round off the corners of a graph" one gets the following:

Theorem. *There exists an infinitely differential function f on* [0, 1] *to* [0, 1] *such that*

(1) $f(x) \leq x$ *and*

(2) *The inverse limit system using f as the sole binding function is a pseudo-arc.*

The existence of the first-mentioned function if proved through the use of a

Received March 15, 1963. Above research conducted while author was holder of ONR Research Associateship.