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Inverse limits of tent maps

Inverse limits are an important tool in dynamics. They are particularly important in the study of attractors. The work of R.F. Williams showed that for attractors of hyperbolic maps, the attractor is the inverse limit of an inverse sequence with a single covering map f being the bonding map and a branched manifold M being the space. Such inverse limits are denoted (M, f) . The results of Williams were used to show that these attractors have a very clear and understandable structure.

For attractors which are not hyperbolic, the situation is more complicated. Even in the seemingly simple case of inverse limits of the form (I, f_s) where I is the unit interval and f_s is a tent map, the structure of the inverse limit can be complicated.

There are recent results classifying (I, f_s) that are positive and reveal an understandable structure. Most of these results deal with the case that the turning point has a finite orbit. On the other hand, if the closure of the orbit of the turning point contains an interval, little is known about the limit space.

We will give a survey of recent results dealing with inverse limits of the form (I, f_s) and the directions of current research in this area.