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Set-valued functions from an interval into the closed subsets of an interval arise in various areas of science and mathematical modeling. When studying the dynamical properties of a set-valued function, the problem is that if one iterates in the standard way, the orbit of a point is not well defined. We study instead the dynamical system of the shift map defined on the inverse of the set-valued function. Here again, as in so many other settings, complicated topology and complicated dynamics go hand-in-hand. As a by-product we have discovered a new type of continuum. (Received January 13, 2016)