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Robert F. Brown* (rfb@math.ucla.edu), Department of Mathematics, University of California, Los Angeles, Los Angeles, CA 90095. *Construction of multiply fixed n -valued maps.*

A self-map, either single-valued or multi-valued, is *multiply fixed* if every map homotopic to it has at least two fixed points. Let $p: \tilde{X} \rightarrow X$ be a finite covering space, of degree n , of a connected finite polyhedron, and let $f: X \rightarrow X$ be a map. We lift f to an n -valued map $\phi_{p,f}: \tilde{X} \multimap \tilde{X}$ and prove that it is multiply fixed if the Nielsen number of f is greater than or equal to two. We obtain a formula for the Nielsen number of $\phi_{p,f}$ in terms of the Nielsen number of f , the induced fundamental group homomorphism of f , and the monodromy action of the covering space. We describe specific constructions of the n -valued maps $\phi_{p,f}$ on graphs, orientable double covers, handlebodies, free G -spaces and nilmanifolds. (Received March 16, 2015)