INDEX ZERO FIXED POINTS AND 2-COMPLEXES WITH LOCAL SEPARATING POINTS

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Abstract. We study the situation of an isolated fixed point with local index zero at a local separating point in a 2-complex. This fixed point sometimes can be removed and sometimes not, either locally or globally. Criteria are given for local removability in dimension at most two. Results are applied to finding fixed point minimal models on $S^2 \vee S^2$ and $S^1 \vee S^2$. A non-existence result is given in the case of a wedge in which both factors are surfaces with non-positive Euler characteristic.

1. Introduction

In the study of the topology of complexes in low dimensions it is natural to take into consideration the existence of local separating points in the complex. Given a complex X and a self-map $f\colon X \to X$ an important invariant is the Nielsen number $N(f)$. This invariant provides a lower bound for the number of fixed points among all maps in a given homotopy class. The role of separating points can be problematic. In the paper [14] H. Shi points out how to compute the minimal number of fixed points of the identity map when the complex contains separating points, whereas the Nielsen number is at most 1. For maps in general consider the wedge of two circles. Llibre and Nunes [12] compute the minimal number of fixed points for any given homotopy class of maps. There are numerous