Dold sequences for group actions

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Classical Dold sequences $a_n = |Fix(f^n)|$, which enumerate fixed points of iterated maps, are fundamental in understanding periodic points and dynamical systems. My presentation extends this concept to group actions.

A group G acting on a space X is defined by a map $G \times X \to X$ satisfying appropriate conditions. Key elements in this framework include stabilizers $Stab(x)$ of the point $x \in X$, the set $Fix(H)$, which is the set of points stabilized by a subgroup $H \subseteq G$, and $Orb(H)$, which represents the orbit set for H. An important result in this field is the Orbit- Stabilizer Theorem. It establishes a relationship between the orbit cardinality and subgroup properties under specific condition. By focusing on finite-rank subgroups of G, we can define a Dold sequence $a_H = |Fix(H)|$ indexed by the finite rank subgroups of G. This framework not only unifies and extends the classical results but also provides new insights into the structure of the set of periodic points.