FIBER BUNDLES AND NON-ABELIAN COHOMOLOGY

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The transition maps of a fiber bundle are often said to satisfy the "cocycle condition." If we take this terminology seriously, we are led to consider cohomology with coefficients in a non-abelian group. The resulting long exact sequence makes the first and second Stiefel-Whitney classes (and their interpretation in terms of orientations and spin structures) totally transparent. We will also muse briefly about the Eilenberg-Mac Lane space $K(G, 1)$ and the classifying space BG, and about the derived functor Ext.