Math 527 - Homotopy Theory
Spring 2013
Homework 11, Lecture 4/1

Problem 1. Show that a path-connected space is weakly equivalent to a product of Eilenberg-MacLane spaces if and only if it admits a Postnikov tower of principal fibrations with trivial k-invariants (all of them).

Note. Here, we follow Hatcher's convention that the k-invariants are used to build the Postnikov tower of X starting from $P_1 X$ and not $P_0 X$. In other words, by "Postnikov tower of principal fibrations", we mean that the maps $P_n X \to P_{n-1} X$ are principal fibrations for all $n \geq 2$. Using $n \geq 1$ instead would force $\pi_1 X$ to be abelian.