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Generating spaces for $S(n)$ -acyclics. Preliminary report.

In *Cellular Spaces, Null Spaces and Homotopy Localization*, Dror Farjoun proves that rationally acyclic, simply connected spaces are built out of a wedge of mod- p Moore spaces. He also proves that simply connected spaces which are acyclic with respect to mod- p K -theory have suspensions that are built out of $V(1)$, the cofiber of the Adams' map $v_1 : M^{q+3}(p) \rightarrow M^3(p)$, p an odd prime. This notion of one space being “built out of” another can be made precise but should be thought of as analogous to connected CW-complexes being built out of S^1 .

I'll discuss a generalization of this result, mentioned by Dror Farjoun in the above book, where sufficiently connected spaces which are acyclic with respect to a homology theory called $S(n)$ have suspensions that are built out of a space we call $W(n)$, where $W(n)$ is an appropriately chosen type $n + 1$, finite space. If the telescope conjecture is true, $S(n)$ can be taken to be the Johnson-Wilson theory $E(n)$. If it fails, $S(n)$ is a replacement for the theory $E(n)$ which has the same finite acyclic spectra. (Received September 15, 2009)