1077-20-995   **Keith M Jones*** (`keith.jones@trincoll.edu`), 291 Grandview Terrace, Hartford, CT 06114.
Σ^1 for Semi-Direct Products Acting on Locally Finite Trees.

For an isometric action ρ by a finitely generated group G on a proper CAT(0) space M, the invariant $\Sigma^1(\rho) \subseteq \partial M$, introduced in 2003 by Bieri and Geoghegan, provides a notion of "connectivity at infinity" for G.

I will discuss how the natural and well-known connection between Bass-Serre theory and covering space theory provides a framework for the calculation of $\Sigma^1(\rho)$ in the case that ρ is a cocompact action by a semidirect product $G = B \rtimes_\varphi A$ (A a finitely generated group) on a locally finite tree Bass-Serre tree T for A. This leads to a technical theorem providing conditions for the inclusion in, or exclusion from, $\Sigma^1(\rho)$ for a point of ∂M.

This leads to some nice easily stated consequences, particularly when A is a free group and T is its Cayley graph. In this case, points of ∂M are represented by words over the set of generators and their inverses, and we can prove, for example: $\Sigma^1(\rho)$ *contains any endpoint represented by an infinite word containing infinitely many mutually distinct subwords lying in* $\ker \varphi$. (Received September 15, 2011)

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