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Creating actions on the line from actions on the circle

For a given group G, this talk will explain how it is possible to use certain infinite families of orientation-preserving G-actions on S^1 to arrive at an orientation-preserving G-action on the real line. In the case where one knows that no orientation-preserving G-action on the real line exists, this technique yields infinite families of positive integers that encode the obstruction to such an action. While the most straightforward examples are amenable groups, I'll also discuss relevant examples in low-dimensional topology, such as fundamental groups of 3-manifolds and certain mapping class groups. This is joint work with Ty Ghaswala and Jason Bell.