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Mark Brittenham and **Susan Hermiller***, Department of Mathematics, University of Nebraska, Lincoln, NE 68588-0130. *Stackable groups*. Preliminary report.

Stackability is a combinatorial condition on the Cayley graph of a finitely generated group which implies solvability of the word problem. More specifically, this property provides an inductive algorithm which, upon input of a word that represents the identity of the group, outputs a van Kampen diagram for that word over a canonical presentation. The stackable property provides a uniform model of finite complete rewriting systems for groups and of almost convexity for groups, and the class of stackable groups also includes Thompson's group F . We'll also discuss how the inductive nature of the van Kampen diagram procedure can be applied to computing filling functions for stackable groups. (Received September 13, 2011)