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ADDENDUM AND CORRECTION TO "A COMBINATION THEOREM FOR NEGATIVELY CURVED GROUPS"

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0. Introduction

The purpose of this note is to give an algebraic formulation of the main theorem in our paper [1, Theorem (combination theorem)] and to correct an omission in a corollary [1, Corollary (HNNs over virtually cyclics)]. We also state a slightly stronger version of the combination theorem in the last section. Refer to [1] for notation that is not introduced here. We would like to thank Olga Kharlampovich and Alexei Myasnikov for pointing out the omission.

1. Combination Theorem (Algebraic Version)

In this section we give an algebraic formulation of our main theorem [1, Theorem (combination theorem)] which gives sufficient conditions for a graph of negatively curved groups (in the sense of Gromov [3]) to be negatively curved. We start with notation and definitions. Let $\mathcal{G}$ be a finite graph of groups with vertex set $\mathcal{V}$ and edge set $\mathcal{E}$. The group associated to a vertex v is denoted by G_v, and to an edge e by G_e. These groups are assumed to be finitely generated with fixed finite generating sets. If $v = \iota(e)$ is the initial vertex of e, we are also given a monomorphism $f_e : G_e \to G_v$. The edge e with opposite orientation is denoted by $\overline{e}$.

Definitions 1.1. An *annulus of length* $2m$ consists of:

(1) an edge-path $e_{-m}e_{-m+1}\dots e_0\dots e_m$ in $\mathcal{G}$, and

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