A q-analog of Markoff's injectivity conjecture is true

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The elements of Markoff triplets are given by the coefficients of certain matrix products defined by Christoffel words, and Markoff's injectivity conjecture, a long-standing open problem also known as the uniqueness conjecture, is then equivalent to injectivity on Christoffel words. A q-analog of these matrix products has been proposed recently by Morier-Genoud and Ovsienko, and we prove that injectivity on Christoffel words is valid for this q-analog. We also extend the problem to arbitrary words and provide a large family of word pairs where the injectivity does not hold. This talk is based on work done in collaboration with Mélodie Lapointe and Wolfgang Steiner available at https://doi.org/10.5802/alco.322