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Conjugacy of piecewise-linear spheric-transitive automorphisms

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Theorem 1 *If* $x = (x_1, x_2) \circ \sigma,\ y = (y_1, y_2) \circ \sigma,$ *then*

$$x \sim y \Leftrightarrow x_1 \circ x_2 \sim y_1 \circ y_2$$

Let us build a sequence of automorphisms $x^{(n)}$ on spheric-transitive automorphism x in the following way:

$$x^{(1)} = x, x^{(n)} = (x_1^{(n)}, x_2^{(n)}) \circ \sigma, x^{(n+1)} = x_1^{(n)} \circ x_2^{(n)}$$

Theorem 2

$$x \sim y \Leftrightarrow \exists n \in \mathbb{N},\ x^{(n)} \sim y^{(n)}$$

Lemma 1 *If an automorphism* $a \in AutT_2$ *is piecewise-linear, then* $\exists N \in \mathbb{N}, \forall n \geqslant N$ *such, that the value of the function* $Lin^{(n)}(a)$ *is defined.*

Theorem 3 *Piecewise-linear functions* a *and* b *are conjugate in* $FAutT_2$ *if and only if*

$$\exists N \in \mathbb{N},\ Lin^{(N)}(a) = Lin^{(N)}(b)$$

Remark According to the theorem about differentiable finite-state automorphisms [1] and theorems 3 are the conjugacy criteria of differentiable finite-state automorphisms.

[1] Denis Morozov *Differentiable finite-state izometries and izometric polynomials of the ring of integer 2-adic numbers.* 8th International Algebraic Conference July 5 12 (2011), Lugansk, Ukraine.