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IN HONOUR OF MICHAŁ MISIUREWICZ ON HIS 60TH BIRTHDAY

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Tongues and cusps

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(joint work with Michał Misiurewicz)

We study the shape of the boundaries of the tongues, and the behaviour close to their tips, for the family of double standard maps $f_{a,b}(x) = 2x + a + (b/\pi) \sin(2\pi x) \pmod{1}$. It turns out that the shape is fairly regular, mainly due to the real analyticity of the maps. We present a new method to classify non-generic cusp bifurcations for two-parameter families of one-dimensional systems.