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Bounded dynamics in various moduli spaces

For any compact hyperbolic 3-manifold M with boundary, Thurston defined the skinning map: a self-map of the Teichmüller space for the boundary of M . For any postcritically finite branched cover of the 2-sphere, Thurston defined the pullback map: a self-map of the Teichmüller space of the 2-sphere relative to the postcritical set. For any injective endomorphism of a finitely generated free group, there is a semi-action on (i.e. self-map of) the corresponding outer space. In each of these three cases, the existence of a fixed point for the self-maps was a key component of a broader program. Beyond the existence of a fixed point, I would like to characterise exactly when these self-maps have bounded dynamics; moreover, it seems that there might be an underlying principle unifying the seemingly disparate dynamical systems. I will discuss recent results and the open question that interests me.