1044-37-232 **Jeffrey K Houghton***, University of Alabama at Birmingham, Department of Mathematics, 1300 University Blvd Suite 452, Birmingham, AL 35294. *Some Generalizations for Thurston's Classification of Gaps to the Map σ_3.* Preliminary report.

A *lamination* is a set, $\mathfrak{L}$, of closed chords, called *leaves*, in the closed unit disk, $\mathbb{D}$, such that for every $\ell_1 \neq \ell_2 \in \mathfrak{L}$, $\ell_1 \cap \ell_2 \subset \mathrm{Bd}(\mathbb{D}) = \mathbb{S}$ and $(\cup\mathfrak{L}) \cup \mathbb{S}$ is closed in $\mathbb{D}$. We say that a lamination is *leaf invariant* under the map $\sigma_d : \mathbb{S} \to \mathbb{S}$ defined by $\sigma_d(t) = td \pmod 1$ if for every leaf $\overline{pq} \in \mathfrak{L}$, $\overline{\sigma_d(p)\sigma_d(q)} \in \mathfrak{L}$. The length of a leaf $\overline{pq}$ is defined as the length of the shortest arc of $\mathbb{S}$ connecting p and q. A gap G is defined to be the convex hull of a collection of leaves such that no leaf intersects $\mathrm{Int}(G)$. The Classification of Gaps Theorem gives descriptions of the possible types of gaps. A key lemma to the Classification of Gaps for σ_2 is that if a leaf ℓ is longer than $1/3$, and C denotes the region in $\mathbb{D}$ bounded by ℓ and $\ell' = \ell + 1/2$, then the first return of ℓ to C under σ_2 always connects the two components of $C \cap \mathbb{S}$, allowing us to track a leaf's behavior over time. We will generalize this result and part of the Classification of Gaps to σ_3. (Received September 02, 2008)