A marking graph for finite-type Artin groups

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September 8th, 2025

Marking graph for surfaces

- A *marking* on a surface S is a set $\{(\alpha_i, t_i)\}$ which satisfies the following conditions.
  1. $\{\alpha_i\}$ forms a pants decomposition of S.
  2. α_i and t_j are disjoint when $i \neq j$.
  3. α_i and t_i have the minimal possible nonzero intersection number.

- There are two types of *elementary moves* between markings: twist and flip.

- The *marking graph* is the graph with vertex set equal to the set of markings on S and an edge between M_1 and M_2 if they are connected by an elementary move.

Theorem (Masur-Minsky, 2000)

The action of $MCG(S)$ on the marking graph is geometric.

Definition

- A *marking* on a finite-type Artin group A_Γ is a collection $\{(P_i, Q_i)\}$ which satisfies the following properties.

  1. $\{P_i\}$ spans a maximal simplex in C_{parab}.
  2. z_{P_i} commutes with z_{Q_j} exactly when $i \neq j$.
  3. For each j, the collection $\{P_1, \cdots, P_n, Q_j\}$ is simultaneously standardizable.

- There are two types of *elementary moves* between markings.

- The *marking graph* is the graph with vertex set equal to the set of markings on S and an edge between M_1 and M_2 if they are connected by an elementary move.

Theorem (Ragosta, 2025)

The action of $A_\Gamma/Z(A_\Gamma)$ on the marking graph is geometric.