On the other hand, if ζ is any closed curve on S with a minimal number of intersections with ψ_i^j in its free homotopy class, then we can remove from S three points which do not lie on ζ and such that two of these points lie on ψ_i^j. If we call the resulting surface S_∞ then ζ defines a closed curve ζ_∞ on S_∞, and $i(\zeta,\psi_i^j)$ equals the number of intersection points between ζ_∞ and γ_i^j (where γ_i^j is given as before). This then shows that $\mathcal{J}(\zeta_\infty,\gamma_i^j) \le i(\zeta,\psi_i^j) = i([\zeta_\infty],\psi_i^j)$ $\square$

As an immediate consequence of Lemma 5.6 and Lemma 5.7 we obtain

COROLLARY 5.8. *The curves ψ_i^j on S are parametrizing for $\mathcal{PL}$. In particular, for every $g \geq 2$ there is a family of $6g+3$ free homotopy classes on a closed surface of genus g which is parametrizing for $\mathcal{PL}$.*

REMARK. From [FLP] one immediately obtains a family of $9g-9$ closed curves on a closed surface of genus g which is parametrizing for $\mathcal{PL}$. To my knowledge, the minimal number of simple closed curves with this property is not known.

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