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A Markov theorem for generalized plat decomposition

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Abstract. We prove a Markov theorem for tame links in a connected closed orientable 3-manifold M with respect to a plat-like representation. More precisely, given a genus g Heegaard surface Σ_g for M we represent each link in M as the plat closure of a braid in the surface braid group $B_{g,2n} = \pi_1(C_{2n}(\Sigma_g))$ and analyze how to translate the equivalence of links in M under ambient isotopy into an algebraic equivalence in $B_{g,2n}$. First, we study the equivalence problem in $\Sigma_g \times [0, 1]$, and then, to obtain the equivalence in M, we investigate how isotopies corresponding to "sliding" along meridian discs change the braid representative. At the end we provide explicit constructions for Heegaard genus 1 manifolds, *i.e.* lens spaces and $S^2 \times S^1$.

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