Manifold Atlas: supplementary material for the page **Formal group laws and genera**

Theorem. (Mishchenko). *The logarithm of the formal group law of geometric cobordisms is given by*

$$g_U(u) = u + \sum_{k\geq 1} \frac{[\mathbb{C}P^k]}{k+1} u^{k+1} \in \Omega_U \otimes \mathbb{Q}[[u]].$$

Proof. We have

$$dg_U(u) = \frac{du}{\frac{\partial F_U(u,v)}{\partial v}\Big|_{v=0}}.$$

Using the formula of Theorem 3.2 and the identity $H_{i0} = \mathbb{C}P^{i-1}$, we calculate

$$dg_U(u) = \frac{1 + \sum_{k>0}[\mathbb{C}P^k]u^k}{1 + \sum_{i>0}([H_{i1}] - [\mathbb{C}P^1][\mathbb{C}P^{i-1}])u^i}.$$

A calculation of Chern numbers shows that $[H_{i1}] = [\mathbb{C}P^1][\mathbb{C}P^{i-1}]$. Therefore, $dg_U(u) = 1 + \sum_{k>0}[\mathbb{C}P^k]u^k$, which implies the required formula. □

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