Topological and $\mathcal{H}^q$ Equivalence of Prime Cyclic p-gonal Actions on Riemann Surfaces - Tables

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Example 1 *The following table show the complete story for the smallest genus and prime with conflation.*

Generating Vector of $\mathbb{Z}_5$	*Multiplicity Matrix*
$(c_1, c_2, c_3, c_4) = (1, 1, 1, 2)$	$\begin{bmatrix} 0 & 1 & 3 & 5 & 7 \\ 2 & 1 & 2 & 4 & 6 \\ 1 & 3 & 2 & 4 & 5 \\ 1 & 2 & 4 & 3 & 5 \\ 0 & 2 & 4 & 5 & 4 \end{bmatrix}$
$(c_1, c_2, c_3, c_4) = (1, 1, 4, 4)$	$\begin{bmatrix} 0 & 1 & 3 & 5 & 7 \\ 1 & 1 & 3 & 5 & 5 \\ 1 & 3 & 3 & 3 & 5 \\ 1 & 3 & 3 & 3 & 5 \\ 1 & 1 & 3 & 5 & 5 \end{bmatrix}$
$(c_1, c_2, c_3, c_4) = (1, 2, 3, 4)$	$\begin{bmatrix} 0 & 1 & 3 & 5 & 7 \\ 1 & 2 & 3 & 4 & 5 \\ 1 & 2 & 3 & 4 & 5 \\ 1 & 2 & 3 & 4 & 5 \\ 1 & 2 & 3 & 4 & 5 \end{bmatrix}$

Table 1

Example 2 *Here is a sample of low genus actions that are not distinguished by $\mathcal{H}^1(S)$ equivalence and the lowest degree differential that separates them.*

p	t	σ	*some conflated actions*	*smallest degree of separating differential*
5	4	4	$(1,1,4,4),(1,2,3,4)$	2
5	5	6	$(1,1,1,3,4),(1,1,2,2,4)$	2
5	6	8	$(1,1,1,4,4,4),(1,1,2,3,4,4)$	2
7	4	6	$(1,1,6,6),(1,2,5,6)$	2
7	5	9	$(1,1,1,5,6),(1,1,2,5,5),(1,1,3,4,5)$	2
7	6	12	$(1,1,1,6,6,6),(1,1,2,5,6,6)$	3
			$(1,1,3,4,6,6),(1,2,3,4,5,6)$	

Table 2

Looking at the table we see that quadratic differentials will not always work.

Example 3 *In the table following the column good degrees are the q such that $\mathcal{H}^q$ separates topological actions for all t. The bad degrees have conflated actions for infinitely many values of t.*

p	*good degrees*	*bad degrees*
3	$1, 2, 3$	
5	$2, 4$	$1, 3, 5$
7	$3, 5$	$1, 2, 4, 6, 7$
11	$3, 5, 7, 9$	$1, 2, 4, 6, 8, 10, 11$
13	$2, 4, 6, 8, 10, 12$	$1, 3, 5, 7, 9, 11, 13$
17	$2, 4, 5, 6, 8, 10, 12, 13, 14, 16$	$1, 3, 7, 9, 11, 15, 17$
19	$3, 4, 5, 7, 8, 9, 11, 12, 13, 15, 16, 17$	$1, 2, 6, 10, 14, 18, 19$

Table 3