

4. Comparison between the E -module structures of $\tilde{H}^*(L(k))$ and the free E -submodule of $\tilde{H}^*(BO(n))$

We list the actions of the E -basis of $\tilde{H}^*(L(2))$, free E -submodule of $\tilde{H}^*(BO(2))$, $\tilde{H}^*(L(3))$, and free E -submodule of $\tilde{H}^*(BO(3))$.

$\tilde{H}^*(L(2))$		$\tilde{H}^*(BO(2))$
	$\xrightarrow{Q_0}$	$a_{(2i+1, 2j+1)}$
$a_{(2i, 2j+1)}$	$\xrightarrow{Q_1}$	$a_{(2i+3, 2j+1)} + a_{(2i+1, 2j+2)}$
	$\xrightarrow{Q_0 Q_1}$	$a_{(2i+2, 2j+2)}$

		$\tilde{H}^*(BO(2))$
	$\xrightarrow{Q_0}$	$w_1^{2i+1} w_2^{2j+1}$
	$\xrightarrow{Q_1}$	$w_1^{2i+3} w_2^{2j+1} + w_1^{2i+1} w_2^{2j+2}$
	$\xrightarrow{Q_0 Q_1}$	$w_1^{2i+2} w_2^{2j+2}$

$\tilde{H}^*(L(3))$		$\tilde{H}^*(BO(3))$
	$\xrightarrow{Q_0}$	$a_{(2i+1, 2j+1, 2k)}$
$a_{(2i, 2j+1, 2k)}$	$\xrightarrow{Q_1}$	$a_{(2i+3, 2j+1, 2k)} + a_{(2i+1, 2j+2, 2k)}$
	$\xrightarrow{Q_0 Q_1}$	$a_{(2i+2, 2j+2, 2k)}$

		$\tilde{H}^*(BO(3))$
	$\xrightarrow{Q_0}$	$w_1^{2i+1} w_2^{2j+1} w_3^{2k} + w_1^{2i} w_2^{2j} w_3^{2k+1}$
	$\xrightarrow{Q_1}$	$w_1^{2i+3} w_2^{2j+1} w_3^{2k} + w_1^{2i+1} w_2^{2j+2} w_3^{2k} + w_1^{2i+2} w_2^{2j} w_3^{2k+1} + w_1^{2i} w_2^{2j+1} w_3^{2k+1}$
	$\xrightarrow{Q_0 Q_1}$	$w_1^{2i+2} w_2^{2j+2} w_3^{2k} + w_1^{2i} w_2^{2j} w_3^{2k+2}$

$\tilde{H}^*(L(3))$		$\tilde{H}^*(BO(3))$
	$\xrightarrow{Q_0}$	$a_{(2i+1, 2j, 2k+1)}$
$a_{(2i, 2j, 2k+1)}$	$\xrightarrow{Q_1}$	$a_{(2i+3, 2j, 2k+1)} + a_{(2i+1, 2j+1, 2k+1)}$
	$\xrightarrow{Q_0 Q_1}$	$a_{(2i+2, 2j+1, 2k+1)}$

		$\tilde{H}^*(BO(3))$
	$\xrightarrow{Q_0}$	$w_1^{2i+1} w_2^{2j} w_3^{2k+1}$
	$\xrightarrow{Q_1}$	$w_1^{2i+3} w_2^{2j} w_3^{2k+1} + w_1^{2i+1} w_2^{2j+1} w_3^{2k+1} + w_1^{2i} w_2^{2j} w_3^{2k+2}$
	$\xrightarrow{Q_0 Q_1}$	$w_1^{2i+2} w_2^{2j+1} w_3^{2k+1} + w_1^{2i+1} w_2^{2j} w_3^{2k+2}$