

Meta-group cocycles

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8:12 AM

$$\begin{aligned} m_1^2: (g_1, g_2, w) &\mapsto (g_1, g_2, w + j(g_1)) \\ (g_1, g_2, g_3, w) &\mapsto (g_1, g_2, g_3, w + j(g_1)) \mapsto (g_2, g_3, w + j(g_1) + j(g_2)) \\ &\mapsto (g_1, g_2, g_3, w + j(g_2)) \mapsto (g_2, g_3, w + j(g_1) + j(g_2)) \\ j(g_1, g_2) - j(g_2, g_3) + j(g_1, g_2, g_3) - j(g_2, g_3) &= 0 \end{aligned}$$

Group cocycle: M - a G -module, meaning

$$(gh)m = g(hm)$$

$$j: G \rightarrow M \text{ with } j(gh) = j(g) + gj(h)$$

makes $G \times M$ into a group with

$$(g, m) \cdot (h, n) := (gh, m + gn)$$

Meta-group cocycle:

