On [A26]

Sug Woo Shin

(UC Berkeley/Korea Institute for Advanced Study)

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based on joint work by

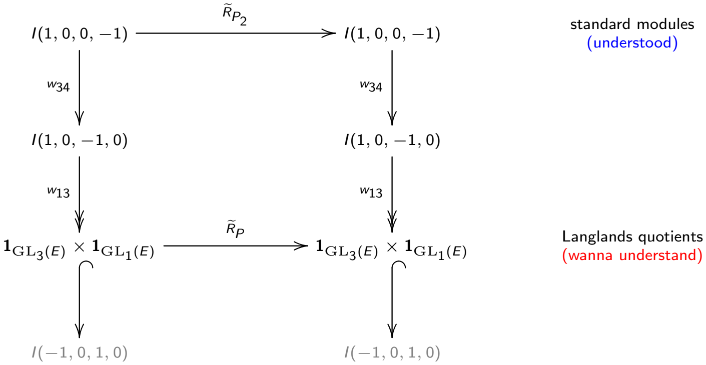
AGIKMS (Atobe–Gan–Ichino–Kaletha–Minguez–S.)
https://arxiv.org/abs/2410.13504

Goal

We illustrate the idea of proof when

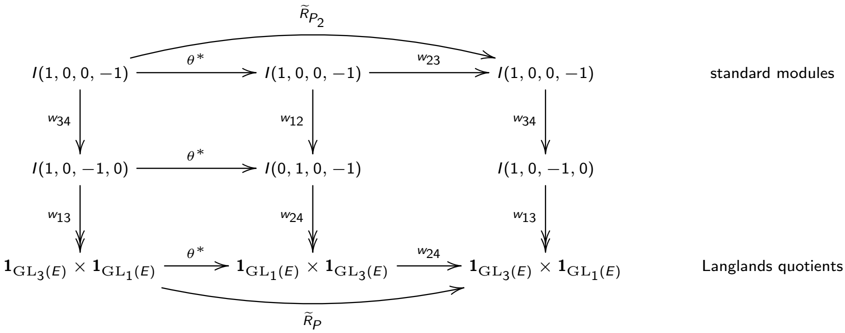
- $M = \mathrm{GL}_3(E) \times \mathrm{GL}_1(E) \subset P = MN_P \subset G = \mathrm{GL}_4(E)$,
- $\psi = \mathbf{1}_{L_E} \boxtimes S_3 \oplus \mathbf{1}_{L_E} \boxtimes S_1 \in \Psi(M)$, thus $\pi_\psi = \mathbf{1}_{\mathrm{GL}_3(E)} \boxtimes \mathbf{1}_{\mathrm{GL}_1(E)} \in \mathrm{Irr}(M)$,
- $\times$ denotes parabolic induction; $I(a_1, ..., a_4) := |\cdot|^{a_1} \times \cdots \times |\cdot|^{a_4}$,
- w_{12} is Weyl element, or the corresponding LIO, for cycle (12).

Goal: The following rectangle **commutes**.



Refine the diagram

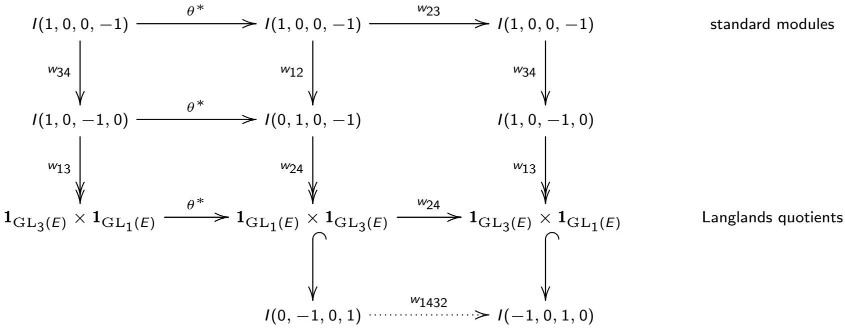
Decompose the twisted intertwiner $\widetilde{R}$ into θ^* and untwist.



Goal: The big rectangle commutes.

Left half isn't hard. Right half: why not obvious from multiplicativity?

Meromorphic continuation



- In meromorphic families, right half commutes by multiplicativity.
- At the point of interest (namely above), the bottom arrow is **not** defined.
- Solution: A careful 2-step specialization from 2-parameter memorphic families.