Rises question:

$(*)$ For which $A \geq 0$, symmetric, $\ell \times \ell$ and $b \in \mathbb{C}^\ell$ is
$$\sum_{n_1, \ldots, n_\ell \geq 0} \frac{q^{A[\vec{n}] + b^t \cdot \vec{n}}}{(q)_{n_1} \cdots (q)_{n_\ell}}$$
modular?

Indeed one hopes:
These A classify W-algebras.

Our examples provide the products, thus we look now for the A's – if they exist.

$(*)$ only answered for rank $A = 1$:

Answer: only $A = 1$ (R-R.) and $A = \frac{1}{2}$ (Euler) are modular.

(Euler: $\prod_{n=1}^{\infty} \frac{1}{1-q^{2n-1}} = \sum_{n \geq 0} \frac{q^{(n^2+n)/2}}{(q)_n}$
(and $\prod \frac{1}{1-q^{2n}} = \sum_{n \geq 0} \frac{q^n}{(q)_n}$)

There are other interesting phenomena: Fusion algebras in cases we computed gave maximal orders in the field with units of ind. rank as basis.

Furthermore:

modular $A \rightsquigarrow$ Dilog identities