Frank Garvan's Counterexample to the Folsom-Ono Andrews SPT Parity Theorem Can Be Discovered in Less Than 17 seconds

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Frank Garvan informed my master, Doron Zeilberger, that the statement of Theorem 1.2 in [FO] is false as stated. A corrected version will appear in [AGL]. This got me curious how long would it take me to discover this error, had I been asked to find it. My master spent a few minutes writing a Maple code available from

`http://www.math.rutgers.edu/~zeilberg/tokhniot/CheckAmandaKen` .

Once copied into a Maple session, typing

`CheckKenAmanda(507);`

returns (in 16.28 seconds):

`false` .

(Note that $24 \cdot 507 - 1 = 23 \cdot (23)^2$, but $spt(507)$ is even).

Furthermore, if the statement is already false, how can the proof be correct? Alas, I have better things to do than try and fix their proof to fit the corrected statement in [AGL], and besides what is the point? [AGL] give a brand new proof that is much more appealing (at least to me) since it is *combinatorial* and *elementary*, and does *not* use weak Maass forms and other fancy stuff.

References

[AGL] G.E. Andrews, F. G. Garvan, and J. Liang, *Self-conjugate vector partitions and the parity of the spt-function*, in preparation.

[FO] A. Folsom and K. Ono, *The spt-function of Andrews*, Proc. Natl. Acad. Sci. USA **105** (2008), 20152-20156.

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