1163-11-1481   **Maryam Khaqan*** (`mkhaqan@emory.edu`). *Elliptic Curves and Moonshine.*

Moonshine began as a series of numerical coincidences connecting finite groups to modular forms. It has since evolved into a rich theory that sheds light on the underlying structures that these coincidences reflect.

We prove the existence of one such structure, a module for the Thompson group, whose graded traces are specific half-integral weight weakly holomorphic modular forms. We then proceed to use this module to study the ranks of certain families of elliptic curves. In particular, this serves as an example of moonshine being used to answer questions in number theory. (Received September 15, 2020)