Review of: "NSE Characterization of the Orthogonal group O_7(3)"

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Potential competing interests: No potential competing interests to declare.

This paper is concerned with characterizations of finite groups by their numerical data, such as collections of sizes of elements of the same order. For a finite group G, let w(G) be the set of element orders of G, and for k in w(G), let s_k be the size of elements of G having order k. Then nse(G) is defined as the collection of s_k's, where k runs over elements in w(G). In this paper, it is proved that if a finite group G has the same nse as that of O7(3), then G is indeed isomorphic to O7(3).

By definition, the order of G is determined by the sum of elements in nse(G), so that if nse(G) coincides with that of O7(3), then one immediately has |G|=|O7(3)|=4585351680. Therefore, most of the arguments in Section 2 are unnecessary, and only the very last argument is required; if there is a gap in my review, please let me know. The last step, which is the only essential part of the paper under review, is a simple induction based on previous studies.

The main result itself would be interesting to experts, I think.