

Christmas cracker pulling: How to send everyone home a winner

December 15 2014

According to experts' statistical analyses, if you're expecting 10 guests for dinner on Christmas day, 15 crackers—those festive cardboard tubes filled with a one-size-fits-no-one paper hat, a small toy, and a groan-inducing joke—should be enough to send everyone home happy. The experts came to their estimation by simulating 10,000 parties, with guest numbers ranging from 2 to 50. Their results are published in *Significance*.

In the traditional approach, all dinner guests sit around the table, cross arms, and pull [crackers](#) with their two immediate neighbors. In this approach, each person has a 25% chance of winning zero crackers, so there are clearly inefficiencies in the system.

A better approach would be to use a system that starts by pairing up individuals and having each pair pull a single cracker. (For odd-sized groups one individual will have to stir the gravy or check the goose while this takes place.) Exactly $\lfloor N/2 \rfloor$ crackers are used in this round, with the same number of winners and losers.

Those who have not yet won continue as before until only a single individual remains. That individual then pulls a cracker with themselves and we are done.

More information: Clifford, D., Lê Cao, K.-A. and Huang, B. E. (2014), A statistician's Christmas party. *Significance*, 11: 44-47. [DOI: 10.1111/j.1740-9713.2014.00784.x](https://doi.org/10.1111/j.1740-9713.2014.00784.x)

Provided by Wiley

Citation: Christmas cracker pulling: How to send everyone home a winner (2014, December 15) retrieved 8 September 2024 from <https://phys.org/news/2014-12-christmas-cracker-home-winner.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.