

1154-O1-2672 **Paul Zorn*** (zorn@stolaf.edu). *Proofs that explain, proofs that don't, and proofs of the obvious.*
Proof and explanation are fundamentally different mathematical and psychological activities. For example, careful mathematicians (e.g., journal referees) will mainly agree with each other that a proposed proof is or isn't valid, but they may disagree strongly on its explanatory value. Proofs are rule-bound and formal; explanations may appeal mainly to psychology, or even to aesthetics.

Yet proof and explanation are closely tied in practice, especially in pedagogy. Standard proofs mathematics majors encounter may explain a lot, a little, or almost nothing. And, surprisingly, proofs of ostensibly obvious facts can illuminate unexpected and deeper properties of ostensibly familiar objects. I'll illustrate with simple examples, mainly from set theory. (Received September 17, 2019)