

# **A Formalization of Cognitive Continuity/Discontinuity, to Settle the Darwin's-Mistake Debate**

**Selmer Bringsjord**

RPI, Troy, New York, United States

**Naveen Sundar Govindarajulu**

Rensselaer Polytechnic Institute, Troy, New York, United States

**Atriya Sen**

RPI, Troy, New York, United States

**Christina Elmore**

RPI, Troy, New York, United States

## **Abstract**

Darwin's *Origin* doesn't discuss the evolution of the human mind. He saved treatment of this topic for the subsequent *Descent of Man*, in which he advanced two claims: (C1) If the cognitive powers of nonhuman animals are discontinuous with those possessed by humans, then the human mind isn't the product of evolution by mutation and natural selection. (C2) The cognitive powers of nonhuman animals, including specifically reasoning powers, are continuous with those enjoyed by humans; continuity is established. Penn, Holyoak, and Povinelli (2008) have in *BBS* written "Darwin's Mistake," in which they purport to refute C2 by establishing discontinuity (they don't affirm C1). Many vehemently disagree with PHP, and the debate remains intense, and unresolved. Yet, (1) the hitherto informal concept of continuity can be formalized, and (2) that formalization, applied to the debate, settles it. We provide the formalization, and with it settle the debate (in favor of PHP).