Evaluation of Proof Exercise

Following the instructions for (linked) *Evaluation of Proofs* exercises (which also are posted on the course homework page), evaluate the below justification of the given conjecture.

▶.   **Conjecture D**. For all positive integers a, b, and c, we have that $\left(a^b\right)^c = a^{(b^c)}$.

Proposed Counterexample.

Conjecture D is false as shown by the following counterexample. Let $a = 2$, $b = 3$, and $c = 2$.

Then

$$\left(a^b\right)^c = a^{(b^c)} \tag{1}$$

$$\left(2^3\right)^2 = 2^{\left(3^2\right)} \tag{2}$$

$$8^2 = 2^9 \tag{3}$$

$$64 \neq 512 \tag{4}$$

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