Claim mod $K_3$:

\[ \begin{align*}
\left\{ \begin{array}{c}
\oplus + \oplus + \oplus - = 0 \\
\ominus + \ominus + \ominus = 0
\end{array} \right. \\
\Rightarrow \ominus = - \left( \oplus + \ominus \right)
\end{align*} \]

\[ = \begin{array}{c}
\oplus + \ominus - \ominus
\end{array} \]

\[ \equiv \begin{array}{c}
\pm \oplus \pm \ominus \pm 2\ominus
\end{array} \]

\[ \pm \ominus \pm 2 \ominus \]

Tentative proof.
Expand both sides:

If all rings are real, get \( \frac{g}{b} = \sqrt{\frac{g}{b}} \).

If two rings are real, get \( 2g + g = 2 \sqrt{1 + g} \).

If one or zero are real, the cancellation is obvious.

Can we get the same out of

\[
\frac{g}{b} = \sqrt{\frac{g}{b}} \quad (\star)
\]

If all rings are real, get \( \frac{1}{1} = 1 \).

If two rings are real, get \( 2x + \frac{1}{b} = 2 \sqrt{1 + b} \).

If one or zero are real, the cancellation is obvious.

Is there a more symmetric way of drawing (\( \star \))?

\[
\begin{align*}
\text{\( a \) & \leftrightarrow \text{\( b \)} \quad \text{\( \leftrightarrow \)} \quad \text{\( \leftrightarrow \)} \quad \text{\( \leftrightarrow \)}
\end{align*}
\]