Abstract

Containment Theory presents an alternative foundation to classical Set Theory, replacing the primitive notion of membership ($\in$) with spatial containment through boundary distinctions. Building on G. Spencer-Brown's *Laws of Form* (1969), we develop a complete computational framework for **boundary logic** (also called the **calculus of indications**) that demonstrates its equivalence to Boolean algebra while offering distinct advantages in parsimony, geometric intuition, and handling of self-reference. **Boundary logic** is a logical system built from the primitive act of drawing distinctions (boundaries), while the **calculus of indications** is Spencer-Brown's original name for this formal system.

The calculus operates from just two axioms: **Calling** ($\langle\langle a\rangle\rangle = a$, where double enclosure returns to the original form) and **Crossing** ($\langle\ \rangle\langle\ \rangle = \langle\ \rangle$, where multiple marks condense to a single mark). From these primitives, we derive the complete Boolean algebra, establishing that the marked state $\langle\ \rangle$ corresponds to TRUE and the unmarked void (empty space) corresponds to FALSE, with enclosure $\langle a\rangle$ representing negation and juxtaposition ab