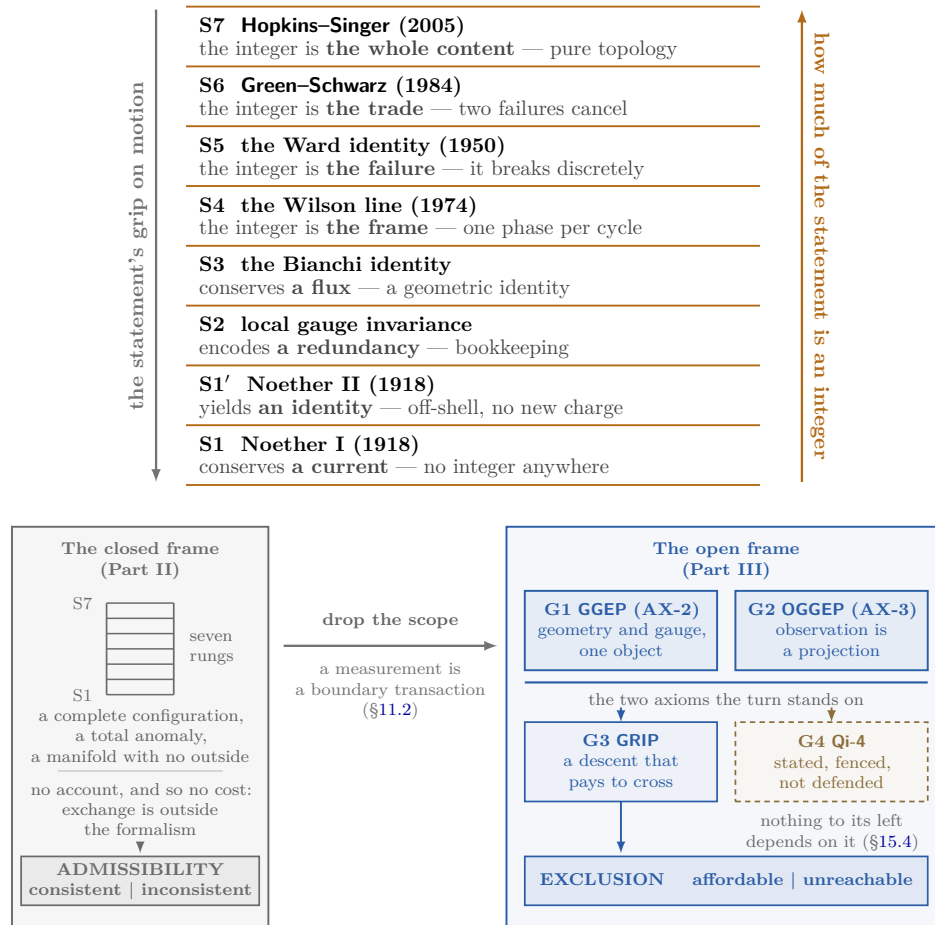


Conservation Laws Grow Harder to Break — as They Say Less About Motion



The whole review on one page. Above: the ladder. Seven steps in the order they were found, and reading upward each one says less about how things move and carries more of its content in a whole number. The lower four carry none and cannot fail at all; the Ward identity is the first that *can*, and it fails only by an integer; Green–Schwarz lets one sector’s failure pay for another’s, which is possible only because each failure is known exactly; and Hopkins–Singer arrives where the conserved thing *is* an integer, safe not by any symmetry but because there is nothing between the whole numbers to move through. Below: what the open-system turn changes. Every step on the ladder describes a closed world, and the strongest closed-system tools — anomaly cancellation, integrality — sort candidate theories into consistent and inconsistent and then stop. They are silent about which consistent option obtains, because sorting by cost requires an account and an account requires a boundary. Open the system and the verdict changes in kind: not *inconsistent* but *unaffordable*. In full: Figure 1, p. 20, and Figure 3, p. 70.