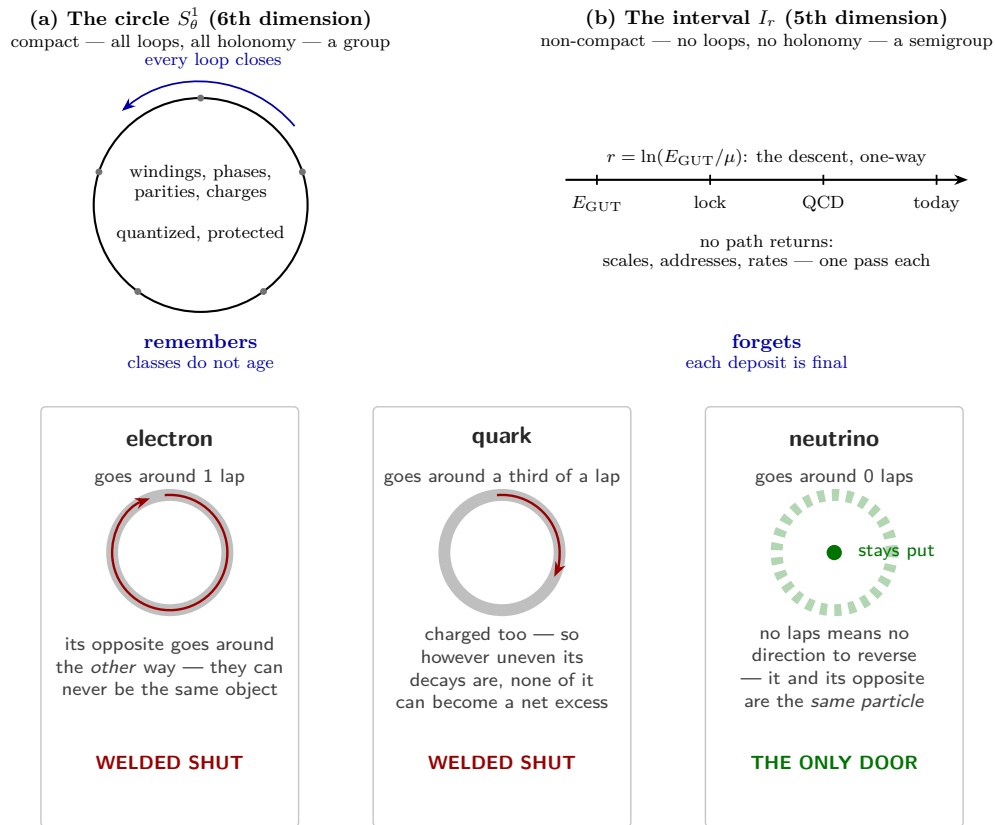


The Circle Remembers What the Interval Forgets — and Only One Particle Can Be Its Own Opposite

Why one mirror survives, and which door it leaves open. *Above:* the arena has two fibers and they hold different kinds of thing. On the compact phase circle every path closes, so everything a connection does there is holonomy — quantized, protected, and unable to be deformed by anything the boundary does. Along the scale interval no path closes, nothing is protected, and the descent visits each scale exactly once. *CPT* is exact because it is a statement about classes on the circle; *C*, *P* and *T* break individually because their breaking is an address written along the interval, once and in one direction. *Below:* the same circle decides which particle can be its own antiparticle. A particle and its conjugate wind in opposite senses, and winding is what electric charge is — so the electron's one lap and the quark's third of a lap weld both doors shut, and exactly one species of known matter is left. That is why the origin of matter runs through neutrino physics, and the reason is structural rather than a matter of degree. In full: §59, p. 96, and Figure 8, p. 84.



Going around the circle is having electric charge. So “can be its own opposite” and “is electrically neutral” are the same condition.