

It is surprisingly straightforwards to use algebraic and geometric topology, in combination with both the  $[\Sigma, S, \delta, \alpha_0, F]$  Chomsky production rule from linguistics and informatics and some *Brassica rapa* plants, to comprehensively refute the consensus that contemporary biologists and ecologists seem to have formed that rigorous mathematical–scientific laws and maxims to govern the life sciences are impossible. That consensus has the unfortunate consequence of perpetuating the widespread dogma that Darwin’s theory of evolution is no more than an unproven—and unprovable—hypothesis. We simply place the *B. rapa* plants upon a conveyor belt that is one generation,  $T$ , in length. As they disappear towards the horizon they form a “base”,  $B$ . The “simply-connected” surroundings form their “universal covering space”,  $C$ . Their interactions with, and transformations within, those surroundings create a “fibre bundle” and a “Whitney umbrella”. They have an “injective”  $\xi^{-1}$  fibre lift up into that universal covering space. Those surroundings in their turn have a “surjective”  $\xi$  projection back down onto the plants. The universal covering space has a set of “deck transformations”,  $\eta$ , that are also the Chomsky production’s  $\delta$ . The *B. rapa* plants eventually reappear from the opposite horizon. Their continuing transformations and interactions complete their  $T = 36$ -day “circulation of the generations”. And … in turning about twice to complete that circulation, the conveyor belt is actually a Möbius strip. And since all those *B. rapa* transformations and interactions have the “homotopy lifting property”, then the surroundings are additionally a “mapping cylinder”,  $M_\lambda$ . The surroundings, as a mapping cylinder, come complete with “fibration”,  $\theta$ , and “cofibration”,  $\rho$ . The plants’ injective  $\xi^{-1}$  fibre lifts are now homeomorphic with the mapping cylinder’s  $\theta$  fibration. The surroundings’ surjective  $\xi$  projections into the plants are similarly homeomorphic with the  $\rho$  cofibration. The plants also have a “fundamental group”,  $\pi(B)$ , formed from a sphere, a torus, and a real projective plane. That fundamental group is isomorphic with the surroundings’ and universal covering space’s deck transformations,  $\eta$ , that govern the Chomsky hierarchy. And since the mapping cylinder is also a universal covering space, then all biology and ecology are determined by the topological criteria governing (i) the base,  $B$ ; (ii) the mapping cylinder,  $M_\lambda$ ; and (iii) the universal covering space,  $C$ , complete with its deck transformations,  $\eta$ , and Chomsky production rule,  $\delta$ . Using  $i$  as an index, then any subset of plants,  $B(Y)$ , formed, as progeny, from any initial set  $B(X)$ , acting as progenitors, is a continuous mapping from  $i_0(B(X)) = 0$  to  $i_1(B(X)) = B(Y)$ , and such that  $M_\lambda : B(X) \times [0, 1] \rightarrow B(X)$ , with  $M_\lambda(x, i) = m_i(x) = 0$  ranging through to  $m_i(y) = y$  for all  $y$  in  $B(Y)$ . The “deformation retract” then declares the laws, the maxims, and the constraints that at long last transform biology and ecology into sound and thoroughly deductive sciences. And … that  $B(Y)$  subset, of progeny, is the immediate proof that a population free from Darwinian competition and evolution is simply impossible.