CHAPTER 8

Matrix and zargon varieties

8.1. Introduction.

The quadratic equation is probably well-understood.

For the cubic and quartic equations we saw in *Superexponential algebra*, there are classical solutions. These solutions are not incompatible with group theory. We also saw in chapter 7 that there are other, nonclassical solutions.

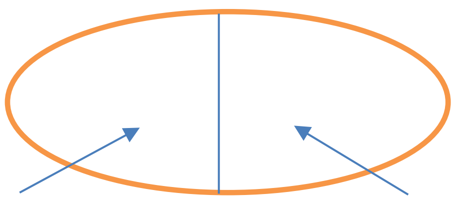
The situation for the quintic is quite different. There is no classical solution, but an incomplete solution method we have given in chapter 7 defines such a solution by radicals. This solution theory *cannot* be described by groups but of course a polynomial equation defines a *ring*.

This seems to indicate whenever we descend to groups to describe polynomial equations, if we go beyond the quadratic, we may, and eventually will, be missing something.

It should now be evident that we have three types of operations available to us in determining solvable solutions. The first is an *expansion*, comparison or adding bogus roots method. The second is a *classical*, or module approach, the third is a *contraction*, or polynomial wheel, process. Finally we have what we call *dimensioning* – adding extra dimensions to the solutions.

These form a solvability game.

solvability game



The Kampf wall in Kogito and the tribble in Fizyk should by analytic continuation be zero at time t = 0, since negative t and positive t should meet at the t = 0 nirvana. The question then is the extent in Fizyk of the Majorana tribble. This neutrino is left-based in the present universe (if t > 0) and right-based at t < 0. If the time to the next nirvana is infinite, then the Majorana neutrino is infinitesimal now and everywhere finitely to the next positive nirvana when we go into antiphysics, maybe. It is then interesting to measure the extent of the Majorana tribble wall as it is now at this instant. Between nirvana 0 and nirvana 1 if the time is infinite, then there exist intermediate infinites, which we have mentioned previously under chapter 1 on ladder algebra.

8.2. Expanded, classical and contracted elliptic curves.

An expanded elliptic curve is if the form

$$y^3 y^n = (x + a)(x + b)(x + c) \prod_{k=1}^{n} (x + d_k),$$

a classical elliptic curve is of the form

$$y^3 = (x + a)(x + b)(x + c)$$

and a contracted elliptic curve is of the form

$$\left(y^4+\sum_{k=1}^{3} f_k x^k\right)-\left(y^4+\sum_{k=1}^{3} g_k x^k\right)=(x+a)(x+b)(x+c),$$

although we might naturally consider

$$\left(y^4+\sum_{k=1}^{3} f_k x^k\right)-\left(y^4+\sum_{k=1}^{3} g_k x^k\right)=(x+a)(x+b)(x+c)(x+e).$$

8.3. Rational points on derived elliptic curves.

8.4. Eigenvalues of matrix polynomials.

8.5. Homogenous matrix varieties in two variables.

8.6. Extension maps and contraction maps.

8.7. Zargon suboxes.

8.8. Zargon varieties.

8.9. Zargon twisted manifolds.

We can choose to embed a local quaternion structure in a global manifold which is oriented, that is say, an ix vector moving through 2π radians in a jy and kz circle returns to itself with the ix vector pointing in the same direction. When this happens, we say the observable derived from the quaternion is *globally bosonic*. We can also implement nonoriented global manifolds in which an ix vector moving through 2π radians in a jy and kz circle returns to itself with the ix vector pointing in the opposite direction. We then say the quaternion is *globally fermionic*.

Thus we are reduced to considering globally bosonic or globally fermionic quaternion structures. We will see that the globally bosonic and globally fermionic idea can be extended to the zargonions. Our escape route from contradiction is that the extended quaternion object given by the zargonions is not representable by a matrix, and a conclusion is that it is nonassociative. ☐

A Möbius strip has one side and one edge. Its boundary is a trefoil knot.

For the rectangle of figure (2) we can cut out a finite number of holes. Each hole has one edge, and a Mobius strip has one edge, so we can glue them together.

If zargonion rings are given a lower and an upper bound in each of their n coordinates, x_0, x_1, ... , x_{n-1} as $\pm a_0$, $\pm a_1$, ... , $\pm a_{n-1}$, then the pair $(+a_i, +a_j)$ and the pair $(-a_i, -a_j)$ can be glued in two ways as a_i to $-a_i$ and a_j to $-a_j$, or as a_i to $-a_j$ and a_j to $-a_i$. The first defines a global bosonic structure and the second a global fermionic structure.

We will label bosonic structures by b and fermionic structures by f. If we look at just the zargonion imaginary components of the zargonion, then for say a quaternion, there are configurations {b, b, b}, {f, b, b}, {f, f, b} and {f, f, f}.