CHAPTER 8

Algorithms

8.1. Introduction.

The necessity of this chapter became apparent to me when I had introductory conversations at Reykjavik University in Iceland on conceptors. These are meaning processing machines that go much further than syntax processors with zero intelligence. These are called computers and the theory of them was developed, amongst others, by Satanist von Neumann. These machines are not yet the final Aim we wish to achieve. These are machines which can understand the Meaning of Love. We know that humans already know something about this, but it does not always work. We think these Love machines might help us solve problems when Love is missing. We think that humans were once world experts in doing this physically, but performance has declined in present times, partly but not completely because of the presence of computers, which implement the control part of a game (we might almost call the control part of a game is a von Neumann game, since von Neumann and Morgenstern developed a theory of control capitalism, which is about money without the ethical, or cooperative, part of a game, or the murder part of it, a negative or uncooperative game. von Neumann developed the mathematical theory of Arclight bombing in Viet Nam. See the last item in his Collected Works for this. von Neumann is supposed to have died, but this was in secret, we are told in terrible pain, but there are no records of it). However it would be inappropriate to call control capitalism a von Neumann game. The von Neumann game implements murder control and, except for von Neumann himself, not need distribution which belongs to the ethical part. We need control capitalism. If we abolish money, which is the power distribution mechanism for our social game, then with the Kampf wall down, murder obtrudes into need and kills it. Satan wins. Bye bye von Neumann.

8.2. Triviality up.

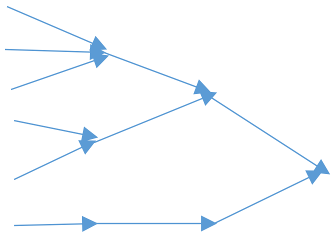
Triviality up is the best strategy for all problems when we solve a problem by splitting it up into bits and doing one thing after another. What does this mean? Establish an *Aim*. For each action towards the Aim go down a 'triviality tree' to get the most trivial action, and clear it. Clear all trivial problems until there are no more to clear. Then ascend upwards to a less trivial level. Every trivial event must be cleared to get to the Aim. If you come across a more trivial item you had not noticed was there, clear it now. This is a very pleasant way to solve problems best. It only needs peanut brains to determine which of two options is the most pleasant. Suck it and see.

8.3. Problem descent.

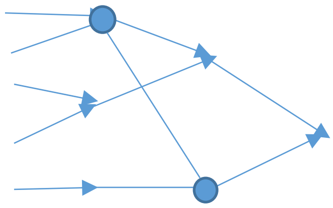
The worst way unless you can solve everything all at once, when it is the best, is *Problem descent*. Don't use it. You have to work everything out before you start. If you see a peanut you hadn't noticed, it may be relevant, and you have to work it out all over again. It fails if your computation power is merely Galactic Supercomputers and Donald Trump. It is unpleasant and will except for picking up a teaspoon to stir tea, fail.

8.4. Insight into algorithms.

We display the example diagram below which shows a general algorithm as a method of solution to an Aim which is a combination of Triviality up serial processes and parallel Problem descent events.



Nodes may reconnect to produce an amalgam and not a tree.



When multiple branches join together at a node, this indicates the sequence may be processed in parallel, although there is the option of reassembling this parallelism as a serial set of nodes and processing in this way instead.

8.5. Birkby's theorem.

It is the often case that mathematical theorems are misattributed, and sometimes deliberately so. The present section gives birth to a new subject in mathematics, and since my niece Katy Birkby gave birth to her son Jack whilst the solution of the quintic was being substantially developed, and this general theorem arose at that time as a consequence of trying to understand the foundations of such a result and whether it was possible, the author asks the indulgence of the mathematical community that it be called Birkby's theorem.

In the case of killing central terms, the Galois hypothesis that there are no general solutions by radicals for polynomial equations degree $n > 4$ has been confirmed by dependency theory. It can be expressed in the language of categories. Where central terms are not killed, a question arises as to whether counterexamples to the Galois hypothesis are feasible. In order to give an indication of an answer, we need to ask what is meant by a solution and what is meant by an algorithm.

An idea might be, that having evaluated the complexity of a problem, and that is representable, that having a general method of solutions for finite algorithms in insight we have a solution for finitely representable algorithms.

The problem we face may be described as finding a mapping

$$x^n + a_{n-1}x^{n-1} + \cdots + a_0 \overset{g}{\rightarrow} (x + b_1)(x + b_2)\cdots(x + b_n) \quad (1)$$

where the left hand side is a polynomial function in additive format and the right hand side is in multiplicative format. The mapping may also be described in terms of the two sides in the form of equations, perhaps not in the same variable x, which equal zero.

This is clearly a problem where the algorithm, or method of solution, not only depends on polynomial ring theory, but is a problem about maps in ring theory. Relatively these maps, as pointed out by J. S. Milne, may not be inner ring automorphisms satisfying multiplicatively

$$H = \sigma H \sigma^{-1}$$

but possibly exclude this type – outer ring automorphisms (or maybe not be multiplicative).

We first note that by the distributive axioms of a ring

$$(c + d)e = ce + de$$

the mapping g^{-1} is injective and surjective over its elements in the complex field, since this mapping contains no singularities for complex numbers, and we are dealing with a ring here with no division, including by zero, and therefore g^{-1} is a bijection. In the case we are considering, this bijection is an equality for its equations which have value zero. This is often stated as Gauss's theorem, that a polynomial in additive format of degree $n \geq 1$ has at most n zeros and at least one. It is clear that if the field is finite, the b_m are finite, the zeros of x are finite and thus by the distributive axiom and solving simultaneous equations the a_m are finite. This also happens when the a_m and b_m are considered not as collections of values in a field, but as symbols representing sets (the symbol terminology in category theory is a *universal*, and category theory, being about associative collections of mappings, applies to rings).

An algorithm is a set of maps from one set of absolute states to another. It may be defined inductively, by a repetitive process on finite states where the algorithm is specified finitely, or otherwise the algorithm does not range over a finite set of states, but an infinite set.

If there is no algorithm, its existence is inconsistent, and is equivalent to the statement 1 = 0, which is excluded in the axioms for a field. The transformation g^{-1} exists and is consistent (we prove elsewhere, extending the methods of Gentzen, that fields are consistent provided the choice function is restricted to exclude the choice 1 = 0), g^{-1} is bijective and so g is consistent. A question is whether the algorithm or specification for g is finite or infinite.

The right hand side of (1) is invariant under permutations of the b_m. It is not invariant under other transformations of the symbols b_m which exclude permutations. The number of states which this correspond to is n! If the number of states of g acting on x, a_m and b_m were infinite this contradicts the statement that the number of transformations of g is at most the number of mappings of n! states to n! states, which is finite.

Thus algorithms acting on symbols are defined finitely for this problem, as a set of states

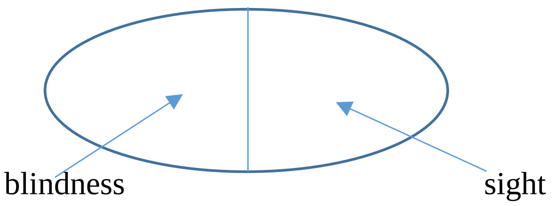
$$(n! \to n!) \to \big((n + 1)! \to (n + 1)!\big),$$

and is definable by a finite algorithm in n, where the number of mappings from a set with A members to a set with B members is B^A. This indicates that what we have called the Galois hypothesis is false, so that by a finite search an algorithm can be found, and the issue is not one of the computability of solutions by radicals, but their discovery and efficiency. ☐

The natural conclusion is that all algorithms are solvable. The reason there is no theory of algorithms derives from the statement that this contradicts Galois solvability theory. We have seen in section 6 that there is an illegal solution to the cubic that Galois solvability theory forbids. The question then arises: is our theory of algorithms defective, is Galois solvability theory defective, or both? We have already indicated a flaw in Galois solvability theory. ☐

8.6. Meaning.

For those who must shower me with too much adulation, I now come to what is to me a counterexample to myself. Let us look at this counterexample directly, and discuss its implications later. You, and I, have been led astray by too simple a thinking, which does not correspond to the complexity of our real world. Here it is.



Which is the murder game? Come on Satan, it is me, I have found you out! Is blindness the murder game which must overwhelm sight? Is the cure for blindness, when we have it, to apply blindness to it and then we can see? Without dithering about we can see we have deluded ourselves.

We must not abandon games, particularly I think from my history now confuted, these mathematical ones in Kogito, as I said. These appear to me to be in mathematical truth. However, even if we accept (it must be proven, but how?) that Fizyk as the game of physics is described by the zargon game, we must admit this game is complicated, for it describes us. If we are not complicated enough, we cannot understand it, even though, in Kogito it is a (relatively) simple game. What has gone wrong here and where is my mistake? Is everything I have said wrong, say also we abandon negative numbers with (–1)(–1) = 1? I think surely of the mathematical game it is for me as too much of a conservative mathematician to dump all this culture for which it has provided within me a location to Aim for Truth. It is better to say that our reasoning is weak, which we well know, and not to describe we can go no further, the situation as has become by insight apparent to me much earlier in this very rapid typing is thus:

Look at it this way. If reality is complex, and the mathematical game is simple and elegant, it must surely be a good first try to establish if we can the universal validity of the game in physics. If that is not so (the example for humans of blindness and sight is very complicated to describe with a very simple mathematical idea – clearly this mapping is not correct here) are there general conditions under which we know we can apply Kogito to Fizyk?

We know, for example, that we have gone wrong (but must prove this is the only general case – it is!) because the complexity of the mathematical game does not match the complexity of the physical one, and therefore we cannot without further analysis apply reasoning which is sure and correct.

8.7. The algebra of insight and intuition.

8.8. Analogies.

The idea is that we have research into conceptors at various Universities now planned but not yet implemented by physical results. An initial stage which might be near is that we implement the Analogy Machine. In the Engineering department at Reykjavik University there is very advanced research for the present day by an international team of researchers. An apparently incidental feature of this research is that the 'computers' involved are neural networks. These ae not, in a sense, computers at all, since they are not syntax processors (which of course we need – conceptors must be able to express language. It must have a system of representations in glyphs, which go beyond current research mainly, or perhaps completely), so it will be implemented conceptually in symbols. It will have a knowledge of Reality which will evolve. The analogies it will use are, in the present day, in a sense probabilistic. The machine will evaluate coherence of its evolving theories of Reality. It must establish not only the symbolic correctness of its theories, probably from Insight analysis developed in this work, but it must establish the Reality of what it Knows. It can then Act with certainty that its actions are valid in Truth. If it is a component of a Love Machine it will implement Love.

8.9. Hyperintuition.

A logic may ascend from a binary logic in intuition to a colour logic in what we call hyperintuition. Colour logics may ascend in sequence to those with more and more colours. A zargon logic employs colour logics represented by zargonions, tribbles and tharl algebras. These games by the Wonderful Theorem are representable by binary yin-yang games or their corresponding 3-games of higher dimensional zargon algebras.

So far, by the introduction of zero algebras we have been able to reduce the study of inconsistent systems defined with mathematical fields to the study of the same systems in reason or insight using zero algebras. Thus we have obtained a representation of an inconsistent logic, by a different consistent one. We say a field with division is defined by a condensed absent logic, and a zero algebra is defined by an expanded absent logic. Since even in a field with zero division there is a condensed solution corresponding to the case where every number is equal to every other number, and this is consistent, the question arises, since it appears that inconsistency can be defined by $1 = 0$, and we have seen this has a consistent solution in absent logic, whether there exist any false axiom systems at all. What we do is posit their existence. This is analogous to the introduction of negative numbers. We have represented systems of nonassociative algebra by glyphs. This must include expanded systems in absent algebra. A weird glyph is then a representation of a false axiom system, possibly under rules of colour logic, and therefore enabling false deduction threads. By the Wonderful Theorem weird hyperintuition is weirdly representable. This is a step-down computable process given in reason by the algorithmic computability results of chapter 8, and an extension of it. We have so far used weird glyphs as representations. The *unmentionable* is a weird unrepresentable glyph in insight. It is by definition a joke, a contradiction in Kogito. Jokes in Fizyk are death.

8.9. Some evolutionary games.