

# Aristo Tacoma

## Art of Thinking, vol 4:

### ROBOTIC GOAL SORTING

==d11 d3 d9 egshow

A	B	C	D
TOP KEYWORDS	#2 KEYWORDS	#3 KEYWORDS	Spread cID: k1

\*\*\*\*\* IMAGE NUMBER:



1

IMAGE DISKNUM:

3

STARTCARDNUM:

8780

(cBIC,cBrdid:)

9000

SHOW NOW? Y=1:

1

PAns Bt J1,

core p. Bt L1.

PATMAT? Y=1:

Egshow scrpt:

888

Patmat scrpt:

QUANTITY PANS:

3173

Aristo Tacoma

Art of Thinking  
Vol. 4

ROBOTIC GOAL SORTING

GENERAL BOOK INFORMATION:

This is volume 4 of the five-volume series entitled Art of Thinking. These are printed on paper and also available at [www.avenuege.com/library](http://www.avenuege.com/library) for free. Please consult the

www.g15pmn.com, which refers to  
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apps talked about, and explained, and used, inside this  
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reproduction of these texts must be exact and include  
(the sometimes numerous) spelling issues and such in them.  
The volumes are of different sizes, some as books, some  
as booklets; some with much program code and some with  
little program code.

Aristo Tacoma, pen name for Stein H Reusch, is the author  
of this book and of the G15 PMN programming language.

Another pen name is S.R.Weber.

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Apps useful to get acquainted with during (or before)  
reading this volume: #5551234, #5551269 and #5553588.

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SPACE FOR YOUR OWN NOTES



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## CHAPTER 1: HONORING BEAUTY AS FOUNTAIN OF GOOD THINKING

In the first three volumes of this series, the G15 PMN programming language has been introduced while we have, sometimes connected to the language, and sometimes as an independent philosophical quest, explored themes that can sharpen an individual's flair in thinking.

In the first volume, G15 PMN is introduced more or less from scratch, but presupposing a certain knack in handling numbers and a good grasp also of advanced English. Apart from the required skill in English, and a required freedom from fear of numbers, the G15 PMN can in this way be introduced also to the youngest in society.

In the second volume, we take the theme of programming a little further while devoting much time to questions of sexuality, because, when the hormones are ravaging--or, in a brighter perspective, lifting up--the young body, thinking must connect to this storm of emotions and not be a pursuit in abstraction. The art of thinking surely can call on programming both to fine-tune precision in thinking, and as an emotional therapy when one feels that social life is working not too well, but we must also bring a wholeness to thinking by fully incorporating all aspects of life that means anything to us. For most young people, sexuality and questions of beauty belong to the top three or top five priorities.

In the third volume, we are putting G15 PMN to use in a situation in which we want it to help analyzing some input data from a fluctuating world, eg as filmed on a camera by a robot. The elementary forms of pattern matching are explored, and a number of themes are explored together with this, alongside this, and beyond this, connected to the passionate energy of an individual--the quest for beauty--and so on.

Throughout--and this continues also in this volume--we explore psychological and philosophical themes relevant to the serious student of the art of thinking. Necessarily, since the art of thinking permits of countless books of explorations, we will be selective and in many cases just gently dip into a theme before leaving it again. It is hoped that this more organic than narrow-structured scheme encourages your own exploration of these themes.

The technical challenge opened up in the third volume is taken a step further in this volume, by doing fresh FCM programming to get some goals sorted after doing repeated pattern matching--just the type of thing that could power a robot, and for that reason we call it Robotic Goal Sorting. In seeing how this can be done in principle, we can put it to practise in other book series--and their respective apps. A bit of FCM as applied to a very simple robot in the style that we may call 'first-hand mechanics' will also be discussed. A sketch of this robot exists alongside the app Boardworks, which has some simple G15 PMN algorithms that allows a practical sketching of some designs as seen from various perspectives in a room. This ties up to a widening of first-hand programming to also include areas and avenues that traditionally are associated with 'deceptive' programming, such as videos and 3d simulation. What we call G15VID and the G15 PMN style of 3d emulation is mind-stimulating in that there is no attempt to create illusions, whether of movement or of 3D. Rather, there are hints, shown through 'flickers' that are consciously visible, and with no attempt to gloss over transitions, coupled with very easy to understand programs, ensuring that also these activities can be done in a mindful, mind-stimulating, first-hand way.

Philosophically, we have, we might say, started out strong in the previous 3 volumes by honoring beauty as a leading principle, or light, in making thinking coherent.

And on this lofty level, which certainly goes beyond programming--even as it helps us with programming (in that the beautiful program is easier to maintain, correct, understand and get to work than the messy one)--we are, are we not, implying a sense in which a dedication to beauty can be a religious one, in this sense: not as a formula (for beauty is beyond any mechanical set of rules), not as part of a dedication to one person (for beauty is beyond any one person, no matter how astonishingly beautiful) nor as part of a dedication to a book about beauty (because that would imply that the book has successfully defined that which cannot be defined, namely beauty). Of course, the word "beauty" can have different shades of meaning and we can also use synonyms,

and indeed we should use synonyms, so that we don't confuse the meaning with any sequence of letters. We can say things that in some contexts have overlapping or similar meanings, including that someone (or something) is lovely, attractive, gorgeous, fabulous, pretty and such.

I am suggesting that this is a healthier political outlook than being dedicated eg to 'wholeness'. For when wholeness is not lovely, it is not worth it. A system that is not fabulously pretty is not a system worth dedication. However what is beautiful is also whole, and has wholeness.

Being dedicated to beauty is, more than with any other approach I know of, involving a relationship to the moment and to the best of what's present and to a creative willingness to respond generously to that which has most potential of loveliness in the present moment. You cannot be a 'nerd' about beauty, because beauty doesn't let itself be treated as a calculation scheme; it is not something that can be engaged in encyclopedic knowledge and arty clever cunning rapid knowledge application. The nerd is per definition trapped in a sphere of knowledge, unless we use the term non-narrowly, as, "despite the appearance of something definitely cocktail-partyish about her sunglasses and lipstick and general gait of movement, one had the sense that when it came to certain topics, she had a whiff of the nerd about her."

And it is definitely not beautiful to go around with a book in hand and preach it to others and claim that it has all solutions to all questions. It is offensive to Life that anyone tries to shove its essence into a book. There is no real religiosity in the book-fundamentalists; they are just nerds, and for that reason, it is more appropriate to call them materialists and atheists than God-believers, when the "God" they believe in is just a set of letters in a fixed book that they masturbate over.

Similarly, some people are attached to a conjugation of concepts perhaps involving themselves, perhaps involving a word like "enlightenment", perhaps involving another person, in the present or in the past, real or imagined, and preach the implications of this to others. That is also not beautiful; it is an ugly approach to life: and whatever they may say about 'beauty' in such a context,

they are merely a different type of fundamentalists--even if there is no physical book present in their hands, their whole radiance reeks of repetition of something much like a written formula, even if they are cleverly avoiding expressing just what this formula is. They probably want adoration for they hate themselves so much: it is not religious, just silly.

For what is deeply religious? When we look into the concept, it means something like 're-uniting'--re-uniting with the world, with cosmos, with essence, with Silence. Coming back to ourselves, after having been wrapped up in some ego-nonsense. Right? That is what religiousness is about, not all that goes on in the political name of religion; and that is not belonging to any group, whether it calls itself spiritual or atheistic. It is, rather--to use our main thrust in our volumes also here--a result of a passionate zest for beauty.

This zest for beauty must be stronger than the passion for food or anything else; and in bringing it to a lofty spiritual level in which it must decide even what sex is right and important and acceptable and what sex is not acceptable, we are having a religious approach to beauty; and, obviously, such an attitude is a danger to most classical societies and their so-called "values".

For what is a "value"? Let's say, for instance, to speak honestly is considered a "value". The beauty-dedicated person would ask: what is beautiful to say. And in feeling and looking this over, not just from the perspective of immediate satisfaction within the space of some minutes, but in the longer consequences of what is said, a more appropriate response than merely the rigid adherence to such a rule of honesty can and will arise.

In looking to medicine, the 20th century style of mechanistic worldview medicine with a solid indoctrination of such as Darwin's limited thoughts about the human being, the statistics of life-length has become a form of absolute goal; while there has been little or no understanding of the depth and zest and intensity of life, the intensity and depth that makes life worth living. Thus, the politics of life-extension at all costs have dominated the societies moulded in these mechanistic worldviews, as a direct consequence of a complete

disregard for insights into life quality, and often at odds with life quality. For the sake of what? For the sake of fulfilling some statistical goal, whether or not with the blessings of those who are treated by these doctors.

When there is a real dedication to beauty, there is a powerful mental and emotional and creative and also--as we discussed a bit at the end of the previous volume--loving energy in the individual, allowing a new approach, an ever-new approach, to life to be unfolded. This opens up for the full power of thinking; but the premise is that the fears of clashing with what is regarded as "values" in classical societies is superceded. In doing so, we must accept--as we also pointed out in the previous volume--that in being fully honest to our own perceptions, we cannot also express these perceptions under all circumstances. Some opinions are too un-kosher for false societies to accept, even when there is an imagined "value" of free speech dominating them. However, it helps an individual when it is seen that the structures of falseness are all contingent on a lack of dedication to beauty and therefore have sloppy energy--even if their word-usage sometimes reach fanatical, hysterical levels when challenging viewpoints are addressed.

In anchoring oneself in a dedication to beauty, one finds in oneself a peace, tranquility and coherence which is able to tackle any problem, any challenge, because the dedication to beauty is meant to be, whereas all other dedications are but aberrations.

From the principle of the intent of beauty, therefore, the whole of the art of thinking follows. It is by longing for the order and clarity of a beautiful way to understand something that understanding is reached at all; and even if that which is understood by itself appears somewhat lacking in order, the very act of understanding is beautiful and has order; and has in it a way to do a meaningful healing where healing should be done--or a suitable eradication of that which needs to be eradicated.



## CHAPTER 2: Q-FIELDS--NOT TO BE JOKED WITH--TOO MUCH

It is a general axiom of this writer that the limits of your wisdom equals the limits of your humour (or was it vice versa). However wisdom is also to temper humour and laughter when it is of essential priorities in life, in order to honor what is important, and not contribute to a sense of a sarcastic dismantling of all values. The will, the strong, passionate will to act to do right and to create, relies on a sense of integrity of values in order to make sense and have order. And when the philosopher Nietzsche called for an emphasis of will more than fear, it makes sense to remind the will-focussed person that this will can only lead successfully to any coherent passion if there is also a wholesome instinct to avoid breaking with core values: and, depending on taste of language, this may be called a wholesome 'fearfulness'. For instance, the Christian bible speaks of 'fear of God' as something that is a necessary ingredient in the love of God that leads to passionate will to do good. The word for tossing away fearfulness of this sort is 'hubris'. Courage is only meaningful when it is focussed on breaking with lesser rules, anchored in an honoring of the highest rules, and this courage expresses itself through will.

What are these higher or deeper or core values of which one should, or even must, be fearful? We know this as an avenue of much philosophical and religious dialogue. In the Art of Thinking series, we must, in a kind of twofold way, both acknowledge the scope of such dialogues, while also working out what intuitions we can have. And it is the task of this text not just to lay out alternatives, but also to express what seems to the writer to be the

voice of pure intuition in each important question.

And it is in this Art of Thinking book series a recurrent theme that a core value is indicated by the concept 'beauty'. It is possible to think of this in relation to the concept, inspired by super-model theory, of q-fields.

When we honor beauty, we have a passion, a dedication, and it involves self-training to aim at expressing beauty, in a way that has in it frank, playful attention to the results, and an optimism that learning indeed does occur; and a willingness to let go of that which one must let go of for the expressions to improve.

When you make a beautiful program, you sense that beauty --its q-field--and it makes an impact on your mind. This is perhaps why, if you type in a couple of things that are off the track, it is easier to type many more things that are off the track. For your mind is sharp in working with a beautiful structure in the right way. The q-field is sharp. The letter 'q' means, quantum-like, or inspired by quantum nonlocality and other types of holistic fields, including fields with wholeness--also called 'gestalt'--and intentionality--a sense of direction and meaning and time.

The q-field is immensely subtle, it is a dance of fluid coherence, an orchestra unfolding as you work with something beautiful. And this helps maintaining its own unfoldment. The q-field of your mind, your body, and its q-field work together, form larger q-fields. And so you see that if something doesn't fit the q-field and you are not attentive and let some things be there of a sort that ought not to be there at all--such as a lack of limits of loops in a computer--the q-field weakens. And so the guidance from its beauty weakens; and as it weakens, another issue may creep in. And so it matters to have beauty in every step: that does not mean that it need to be failfree in all senses. But it does mean that the most important features of what you are working on are getting the attention that they deserve.

When you have made a program that builds on the obviously strong q-field that the spreadsheet patmat app has, the #5553588 app we sketched in the previous book,

on the foundation of the elementary pattern matching features discussed there, and it builds beautifully on it, honoring the integrity of first-hand programming, that q-field carries over to your program.

A q-field involves fluctuations, meaningful timing, and meaningful responses, and fluctuations come into the program through both the timing that sets off the RFFG and through the subtle and big difference in interaction with the human being, through the expressions of the program and the input mechanisms that the program has.

A program with a good q-field mostly always have some 'resonance numbers'. These are numbers that make good sense in terms of what they do, but they are having an exactitude about them that comes from intuition and nothing but intuition. The range of them may be given by logic, but the precise number is a resonance deep within yourself. To include it in the program is part of expressing your mentality in a first-hand way. The program furthers it.

To learn to draw is similar in process, in many ways, to learning programming. The feedback from each motion of your hands is instant. It is beautiful enough, or it isn't. And once it is finished, it is a gestalt, and the gestalt shines through saliently, beautifully, or it doesn't; in some cases it can be corrected--and mostly all programming involves programming correction very many times pr hour--but in other cases starting over is a better idea. For drawings, especially so. Programs are more accomodating for fixes due to their digital nature: that is part of the fun with computers, that they have a 'backspace' and it really works!

In drawing, it may be that too much dependent on some early lines so even if you draw eg with G15's Curveart program, which can indeed erase lines fully on-screen, the interplay between the lines may be so that a fresh start may be called for. In doing it on paper, fresh starts are a bigger necessity.

In spending thousands of hours on expressing in a way that is not celebrating the 5/6th good drawing but only the fully good drawings--of which there may be very few after thousands of completed drawings, by far most of

whom get discarded--the q-fields of your expressions evolve, your nerves evolve, your language around it evolve --and you get into a state of joy through the energy of coherence associated with good work.

From where do the q-fields come? Just as popperian science has little to say about q-fields--one must invoke something beyond the sensory organs, namely a qualified intuition that is not mere guessing, and which is sometimes hard to get at--the nature and sources of q-fields can only be explored in a neo-popperian science view. One may take the larger context and framework of the super-model theory to understand more of the possibilities of their sources.

The super-model theory speaks of a PMW, a Principle of a tendency of Movement towards Wholeness, operating as the key movement principle, but in so many ways that it may easily appear that there are many forces of movement in the universe. The PMW organizes the fields--which we may informally call 'q-fields'--and which in the theory of course is just these 'super-models'. A variation of this sort of field, springing from a different source of interest and associated with much different ideas of what leads to their strengthening, stem from the works of the biologist Rupert Sheldrake with his 'morphogenetic fields'. I think Sheldrake is wrong in some of his postulates about the holistic fields governing life's processes, but I think he is righter than those who fight for the agenda of a mechanistic biology, in which only local, non-whole forces and fields and particles are brought into the picture of understanding of what life is. In mostly all shamanistic cultures and in many organic worldview oriented philosopher's work, such as in Johann von Goethe's work, there are postulates of something much like holistic fields surrounding living beings or possibly all matter or existence.

It was only with the advent of the quantum phenomena in the 20th century that a scheme of understanding begun to arose in terms of how sometimes fluctuations of an unknown source are significant, and how sometimes these fluctuations somehow seem to submerge in holistic fields that act superluminally on other forces and particles,

that it was possible to shape a worldview in which the universe and its beings no longer are a machine but has both machine-like properties and properties of something entirely different--what we call q-fields.

In such a way, where does FCM stand? FCM, we remember, is First-hand Computerized Mentality in that the programmer creates digital computer programs--which are sets of rules which are mechanical--so that it expresses something of this person's mentality--put simply. [There are some other possible ways of describing FCM also, if we start with a more philosophical turn on visualizing the universe; more about that in other writings.]

Yet some of the mechanical rules involve putting the computer into a state of sensitivity through its electrical circuits to such as a milliseconds computer clock, to keyboard presses by the human interactor, and to mouse pointer movements and mouse clicks by the human interactor, and to more such. This state of sensitivity is in itself not digital, in that it is not up to the program what the human being will type in, nor is it up to the program when the human being chose to start the program, or how exactly the computer running it was configured to handle background processes, leading to minute differences in timing that, when inputted and brought further to an RFFG--Relatively Free Fluctuation Generator algorithm--expands into wildly different numbers.

That is to say, there are fluctuations involved in how some programs unfold, some more than others, and there are several types of fluctuations, some more under human control than others.

In the super-model theory, it is postulated that the universe unfolds only after many sketch-universes have unfolded first. That is to say, the q-field in the present moment may have likely results of upcoming actions, even those involving wild fluctuations, ready at hand. For the manifest universe is but one of many--the term 'multi-verse' is commonly evoked (not invented in the super-model context but used there much).

A good program encourages the right coherent flow of interactions including fluctuations. You get a very lively demonstration of this when you engage with the Patmat-expanded spreadsheet programs, the #5553588 app--which

are but 800-900 cards started after the Third Foundation-- and these 800-900 cards include some 700-750 cards which are the spreadsheet proper, in unchanged form--and when we build on this program, even if we change some features of the spreadsheet, you are in a way having a 'fourth' foundation. Indeed, this is what we call the 'PMWORKS' app. Typically, any program that starts in the Third Foundation also starts in the PMWORKS; but it is easy to build more spreadsheet-style of FCM functions with PMWORKS because the spreadsheet, and the 'PatMat Sheets', are all part of PMWORKS.

The initial pans it comes with are meant for fun exploration of some types of pro-lesbian beauty and porn photos--not close-ups.

The 'patmat sheets' FCM program flashes small stars on the screen for each match-check. A bigger star emerges for each core pattern match. When you really engage with the program you as if feel that you are looking at the image through the eyes of the computer. When there are more bigger stars, then, unless the photo or image is a bit off the mainstream context of what works with the set of pans you have in that program, it also tends to be a more suitable set of keywords--nine or so in the standard setup with the 900 pans that the source app comes with.

Some images, by the way, may seem to be much in the context and yet they tend to give consistently wrong results. Since there is only a probability that photos get meaningful keywords, and since the relevance of the keywords depends on a number of typically shared features of photos in a certain context, but without guarantee that these features are consistently present in a certain way, it is not entirely surprising that there will be some images that 'click in the wrong way' (or we can say, 'mismatch', though it is perhaps best to reserve the word 'match' for its positive usage and keep 'mis-' away from it).

When your program involves steering of a robot that is moving around doing things, supposedly so as not to disturb people nor affect the environment negatively, the program must have a summary of the situation that with a very high probability is correct. If the one of the camera inputs picks up something that leads to a wrong summary,

the robot must have alternative inputs. It could be from the same camera moved in an angle, or a different camera or other sorts of inputs that all in all add to the probability of a correct summary. It can also work over one image several times, but should not rely too much over the results, given the fact that some images 'click wrongly' to probabilistic pattern matching systems.

We are often speaking of FCM pattern matching over such as photos, but that is merely because the visual input is typically both the most complex and also the most feasible to analyze in this context. Any sensory mode, including sound, tactile pressure (sometimes called 'haptic input'), temperature--indeed anything that can be measured on--can be subject to pattern matching more or less by analogy to the visual pattern matching.

A notable difference between sound and vision is that sound is intricately related to movement, process, a gathering of rhythm and vibrations over time, while vision is at many level approached as a more instant-by-instant process, involving forms and structures somewhat more in abstraction from time. Philosophically, much can be made of this distinction.

In the highest level of the FCM of the robot, what we can call the 'nest', there resides priorities as to what are the proper goal given such and such situation summary. In the situation that the robot doesn't have a summary, it will spend time getting a summary that has an adequately high probability, according to its algorithms. Sometimes, no matter how well these are made, it will make mistakes. Good FCM robotic programming is about removing as much as possible all chances of bad mistakes and reducing as much as makes sense the chances of mild mistakes.

The FCM is organized inside the computer through level numbers, as we have talked about. The 'nest' of the highest priorities are in the middle of the flow of level numbers, which we can visualize a bit like the '^' or 'hat' symbol.

In case the robot has to actively interact with objects in a way that leads to somewhat complex changes of the situation in several steps--and in which the responses of these objects, living or not, may not be predictable except in the sense of several likely alternative

responses--the robot may have to simulate both the other objects, the situation around it, and its own responses, and 'see' whether the situation summary develops according to the priorities in its 'nest'.

In order for a robot to simulate or model itself, it can for instance be programmed to have available a 'cub', which is to say a somewhat reduced form of its whole FCM network which it can call on. There can be an FCM network for each of the objects that are to be simulated or modelled. The main robot FCM can start a set of FCM networks to do a simulation of what is likely to be the resulting summary situation given a starting-point action from the robot (which may be no action), and store the situation summary, and proceed to do another simulation sequence in which a different situation summary arises. (This sort of programming is implemented in a crude and digital manner in 20th century chess programs, in which the board of events are entirely rule-based and so not comparable with real life.) The advanced FCM program simulation has in a way to relate to the fluid, analogous structures of real life.

Even though the PC as conceptualized in the G15 PMN context only does 'one thing at a time', except in that graphics and mouse and keyboard handling, and some more such, go on, to some extent, in parallel--the FCM network can call on other FCM networks simply by taking a pause. The switch of variable values from one defined matrix to another is one of the simplest things one can do in G15 PMN, which has a first-hand relationship to what it call warps, as we know.

However to set up several FCM networks so that it all works out nice requires, of course, time and suitable building up of apps from which one can extract key approaches and blend--however with the starting-point of the patmat spreadsheets we have the full range of possibilities at our fingertips.

The FCM network has in it features that resemble how we have talked about super-models. And so the super-model is indeed formulated by means of FCM models, in the sense that G15 PMN FCM mini-programs form the initial illustrations of some features of the theory, though the



theory itself is in core informal. We can see how the idea of 'sketched alternative future universes' matches up the idea of an FCM having a 'cub' within it and there being a simulated series of responses back and forth and a 'report back' to the nest. That there are such metaphors to be played with while the programming with FCM goes on is a good thing, as long as we keep in mind that there are limits to the metaphor in this sense: we are running G15 PMN on very limited machines made of matter that involves almost countless trillions of electrons and other particles. If indeed FCM networks are akin to the subtle stuff underlaying this manifest universe, and if these have something to do with the 32-bit nature of the numbers (which we surmise in super-model theory), it must involve an almost countless number of computers organized in clever ways and of a substance that is, of course, beyond all matter as we experience it--beyond even energy as we measure it--yet perhaps a bit like energy as we feel it mentally and sexually.

The spiritual take on super-model theory suggests that this is not an automatic process but a process that involves the muses and God as 'players' or 'interactors' with this higher-level FCM computers.

In this perspective, you would consider that there are norms beyond the human/political norms for what constitutes a program 'worthy' of getting a powerful, intelligent q-field. And it is here we suggest that FCM in the spreadsheet patmat app have got it right: this is an intuition, and I invite you to check it out for yourself over time. The proposal is that programs that build on, including with changes of the spreadsheet, this patmat spreadsheet app, will get a carry-on q-field on condition that these extensions are beautiful (cfr PMW), and--in some spiritual sense--righteous. A believer in a mechanical worldview will think such criterions sheer nonsense, but how intelligent and beautiful are the expressions of believers in the mechanical worldview? (Eg, Ayn Rand.)

For if the mechanical worldview is right, the believers in the mechanical worldview ought to be favoured with a radiance of clarity. With an organic worldview involving spiritual divine beings right, the believers in this

worldview ought to be favoured iwth not just a radiance of clarity, but also with beauty, luck and all the rest of it, when they are sensitive to what this is all about. And in between the believers in 'the universe as a machine' (who deal with their nonsense called 'AI', or 'Artificial Intelligence'), and 'the universe as a guided spiritual process', there are the pantheists of the type that says, 'no, it is a non-guided spiritual process'. The buddhists are typically of this type, but essentially all who are spiritual without having the concept of one leading light are of this sort. If, for instance, Christ was/is God, there is a difference in being a buddhist before Christ and after Christ. Before Christ it made sense: after Christ it is irreverent. It is thus of importance to distinguish carefully between spiritual worldviews. They are far from 'all one'. And one thing is to distinguish logically--that's not exactly easy, but doable let's say within a year of thinking and discussing and writing for a brainy type--but another thing is to use intuition in a neo-popperian sense to carefully pluck apart and then piece together the True Narrative, without indulging in wishful thinking nor in fear nor in clinging to any guru, authority or hope of own role in that.

Where the q-fields come from is therefore a question that involves the entire worldview in the deepest sense.

What I can say in this regard, as a personal experience, is that what I take to be q-field involves an ever-fresh focus on young female human beauty and adequate support structures around that, and in ways that involve much joy, fun, and sexual feelings, and sometimes sexual expressions --and these q-fields can engage quite a number of people. They can also 'exhaust' some people who have a definite contribution to make, in ways that must be understood with a minimum of sentimentality. The sense of 'having a function' relative to some q-fields may be a hilarious one to an extent that attachments may quickly be formed; but there is a sense of constant newness and self-re-invention about grand q-fields that bring in people sometimes only in flashes. That is easily felt to be painful for those who are brought in only for a short time in a glowing role, but it seems to the the nature of how

these things unfold.

### CHAPTER 3: THE SOCIOLOGY OF FIRST-HANDEDNESS EVERYWHERE

Let us bring together the notion, expressed in various writings by this author, of a market economy of meaningfully small companies, under the slogan of 'small-is-beautiful capitalism', with the concept of first-hand programming.

A common theme in first-handed-ness is attention, and the question of 'what lends itself readily to be attended to'. A program that is too big is per definition not a first-hand program; a degree of compactness is a sought-for quality for it to be human understandable. But a too-tight program, consisting but of some abstract symbols, is not calling for attention either. In other words, a program mustn't be too compressed. It must be somewhat expanded.

A company the size of ten thousand persons is per definition not part of a 'small-is-beautiful' type of market economy. No matter how sexy a name and logo, no matter what products it comes with, it is more a society, or a nation, than a company. A company that sets customers first must feel its vulnerability and its dependence on each little interaction with its customers; and the customers must be able to draw a line around the company

in their mind and get a meaningful sense of what the company is all about. Ten employees yes, ten thousand no. Only self-centered, egotistical rulers, who has a corrupt agenda can avoid setting severe upper limits on size of companies.

In sociology in the twentieth century, much of the main dichotomy was between the ideologies inspired by Karl Marx --which encouraged absence of personal property and a full state-ruled economy, expecting a sort of heaven-on-earth type of society to emerge from this; versus ideologies inspired by the likes of Charles Darwin and Ayn Rand and others who emphasized battle and stress and selfishness as motors of economy. Little attention was given to the size-question.

In going from the 20th to the 21st century, it was a recurrent thought, both in academic and in political communities, both in east and west, north and south, on the planet, that if the state is over-eager in ruling an economy, apathy reigns. To 'let loose' the forces of competition was seen to be--at least to a moderate extent--as central for creativity and prosperity, and even a Marx-oriented nation like China incorporated capitalist thoughts into itself. A number of those who had betted on a 'pure Marx' scheme declared 'ideologies to be dead'. But ideologies weren't dead. It was merely a dichotomy between two extremes--that of 'state doing everything' and that of 'ego doing everything'--that was dead, or more properly, extinguished. The interesting dimensions in between having the state to do everything and the state to do nothing invoke new types of ideologies, and a new type of sociology, and it is here 'small-is-beautiful capitalism' comes in. A philosopher in this regard is Schumacher, who wrote a little book on the theme of Small is Beautiful.

In allowing what we can call 'monster companies' to grow the 21st century, in its inception, also saw a phase in which the typical economical measurement element of 'inflation' to more or less vanish, even if more and more money was required to live in cities. What the first two decades of the twenty-first century saw, was that, on Earth, inflation as an average seemed to go away from some of the most economically prospering societies, while in

fact the richest people got more buying power while the vast majority got less buying power. This, however, was reflected in subtle shifts of pricings that sort of average themselves out and was concealed when conventional measures of inflation were used. Part of this involved the merging of billionaires with those features of governments that set the essential currency developments.

Much more can be said about such themes, and while the analysis of a perfect society with perfect laws governed by perfectly insightful people may be easy, the exact analysis of a thoroughly corrupt world like Earth is as complex as the exact analysis of a truly badly made program and its innerunable meaningless activities.

In the long run, however, it may be better to imagine not only that more perfect rules are put into place, in one way or another, but also to explore the finer nuances of what can or should happen when this takes place. In this way, we have a more abstract form of sociology, that isn't tied up to overzealous hopes that the present societies will in any way significantly improve within a short span of time. We are creating insights that can be part of a perennial stream of knowledge exploration done by humanity.

On the theme of first-handedness, then, we are saying that part of making something meaningfully modifiable and maintainable and improvable by well-meaning human hands, we must work with something that has proper size and, as it were, radiance, to lend itself to human attention. As for companies, that means, not too big, and preferably some more people than just one or two. But first-handedness also means that what we give attention to is worthy of attention. That brings up the concept of 'esthetics'--that something exists in an experiencable way, easy to look at, beautiful. What is beautiful is pleasant to work with. And so in a sociology of a well-functioning society the approach is that anything that smacks of 'duty' is also beautiful, and even if it has a component of pain, it has yet more of pleasure or potential joy.

In mechanics,--the art and logic of designing and making and maintaining useful machines--we have an analogous principle: the components of the machine must be big enough to allow attention to go to them, and somehow

crafted so that meaningful work can take place with them in a first-hand way. In cases where they are very big indeed, one must ask for the usefulness of this size; and a degree of second-handedness will come in, eg by having a small machine operating on the larger machine. The same goes for very small machines: are they really useful here? Intensely so? Well then, a degree of second-handedness comes in, by having a small machine operating on the yet smaller machine. Ideally, as many as possible of the machines should be directly open to hand-made approaches and first-hand handling, maintenance, and reconstruction.

In electronics, which is a field of its own but which sometimes might be considered a sort of unruly subfield of mechanics, the principle of not too small (and not too big) also comes in. We can add other criterions: not too brittle, and not too hard, and so on. In other words, for first-hand electronics to exist, there must be a relationship between the object and the human being in all sensory modalities and so that the person can with own hands and own muscles get a significant portion of the work done, even if many of them requires some kind of tool or another. But these tools must then themselves be of the type that we can call 'first-hand'.

I believe it is good for the record to note that while people who have been in favour of antique cars have always spoken with feverent clarity about something like first-hand mechanics, most of the societal developments in most regions on Earth in the 20th and early 21st century have been taking place in absolute negligence as to the principles of first-handedness, and, as a result, most societies have succeeded not only in excessive industrial output but also in producing a sense amongst humans that humans aren't much point. The industrial revolution, as it has been called, in this sense, has been nothing if not a tool in the hands of the super-rich, who, with their buying power, can live in floating palacies surrounded by servants and existing in a state of constant partying, while most people had to do 10 to 20 hours of work pr day, of relatively trivial work, to be able to pay for their extremely modest rooms and feed their little ones. The sense that something went wrong with humanity due to the industrial revolution is so strong that most of humanity

wants to begin all over again on a different planet--it could seem. But with human-made technology, planets with a meaningful happy-generating environment may require, at the very least, many thousands of years of extremely uncomfortable and uncertain space travel to get to them; or one must plan an indoor-only existence in barracks surrounded by extreme radiation.

As a result, doomsdays cults and conspiracy theories flourish, including people waiting on UFOs, and taking to hysterical interpretations of ancient scripts.

It is the intuition of this writer that humanity will always make it through and come to a beautiful future, but the best bet is not to be hysterical in the meantime. Just focus on doing good things, thinking honestly, employing our most total capabilities to listen to intuition. I am quite sure humanity will always make it and I am also quite sure that the future of humanity involves effortless jumps across light-years. This certainty is not based on empirical logic. There is nothing in human science to suggest this is probable--only possible. But I have reason to trust my intuition from other uses of that intuition: and that intuition, which speaks of a trust in the good future of humanity, on vastly improved premises and in vastly improved circumstances, compared to planet Earth, is more than mere wishful thinking, it is a type of intuition that stands firm. I will not try to justify it and also it may be entirely outside of the reach of humanity at present. In other words, it is not necessarily of any help for anyone looking to a better bodily existence in this life. It is however perhaps of intrinsic value for those who love life, who love beauty, who love humanity as a Mystic Whole, and who listens as best they can to those who seem to have trustworthy intuitions, including precognitions. That humanity will always exist, and in a good way, can be of help, direct emotional help, towards dignity of living, when blended with a faith in reincarnation. And that, too, is an intuition of this writer: that reincarnation is extremely real, and much more so than the Western and Middle-Eastern religions typically have come across with.

#### CHAPTER 4: THE POWER OF SELF-CONGRATULATION

Self-congratulation is the force behind great action, even genius; it is also, in a corrupt form, the force behind stupidity. In a society that glorifies couples, such as husband and wife, a form of self-congratulation can take place in the couple, in that there is mutual congratulation. In a sect, the disciples congratulate the guru, the guru congratulates himself or herself, and offers tiny bits of congratulations to the congregation--especially when they have given him or her much money.

A boss, similarly, may congratulate the employees on carrying out filthy, ridiculous, unethical duties exactly as ordered; and the boss may congratulate himself or herself of approaching the world through his or her horrid ambitions without any trace of conscience.

I can go on and on about the dangers of congratulation. But we also, albeit cautiously, must invoke it on behalf of the person who has earnestly pursued a connectedness to intuition and clear, first-hand thinking, perhaps also as programming, alone or with one other, or with several others, commercially or in some other context. Those who insist on being sceptical and full of doubt all the way through shatters in a torrent of apathy that strikes down every potentially glorious action.

Self-congratulation is, when overdone, a form of psychic obesity, a fat, something abhorrent to be avoided.

Yet it is also a necessity, in one form or another, to carry out meaningful tasks, progress in meaningful actions, rather than relying on superficial bodily pleasures all the time. The psychological rush of pleasure chemicals in the brain is much accelerated if there is a mental event of congratulation in it. It can come from a friend or from oneself--and in the case where it is deserved, it



creates a strength of will to carry on a meaningful action, when the perception is that it is, in all likelihoods, deserved.

It doesn't prove anything that the congratulation comes from others, even if it is many others. Nor does it disprove the value of the congratulation that it comes from oneself. The value of the congratulation must be measured according to whether there has been coherent work done that matches with a wholesome passion.

Those who go deeply into the art of thinking--and the present volume is the fourth in this five-volume book series--are likely to come to a greater relationship to beauty and to having a truthful 'mapping' of reality than many others. Will this insight, this intuition, be put to use? Will it lead to a wonderful business, a lovely program, or some kind of approach to doing a task in society that is brilliant and has great energy and leads to joy also to others? But that may require much work, and much of this work may have to take place in solitude. If one waits on others to celebrate one's actions before one takes another step, obviously one won't go into new territories. To blaze a trail, be a pioneer in putting really good intuitions into use, one must have the power of some degree of independence of energy--but also a power of will, a charged-up clarity of mind and body. It would be good to engage in great exercises, such as martial arts --stamash, as this writer calls it--and walk for long walks and practise the art of love-making while working deeply and passionately to create this new wonder for society.

Is it really a wise task? Is it really a meaningful goal? One must regularly ask oneself that, also. The deliberate invocation of self-criticism must be equally recurrent in the mind that is thrifty about the force of congratulation oneself, and one's companions.

Self-congratulation, like many other aspects of our mentality, have a kind of metaphor or analogy in parts of how we can program FCM. Self-congratulation involves strengthening one's coherence and gathering one's energy as a result of discovering a match between a high-priority goal and a progression towards this goal.

In FCM, the robot, about to act in a complicated

terreign, will often have available a number of possible action-pathways for how to progress. Each of these involve a set of subgoals, perhaps; and each subgoal may further involve a set of subgoals. And as there is a significant progress towards a goal in a way that matches its highest priorities (which includes, for a robot, priorities which we may name as 'ethical', such as not to cause any undue harm at all), it is sometimes meaningful for the robot to take a pause and make note of this progress in an extra clear way in its 'nest' of high-level FCM nodes.

## CHAPTER 5: THE GRAND THEME OF TIME IN A ROBOTIC CONTEXT

Though one can conceive of a context in which a robot is required to press one, and just one, button, at a certain instant, as the sum toto of its expression, the more typical case is that a robot expresses a series of actions. These actions, like a sound wave, can only be really enquired into when seen not just in isolation but as a process, a movement, perhaps involving a clock.

In most natural cases we can think of, it is not just the fact that the robot expresses a particular series of actions over time, but also that it does it on the right time--ie, with good timing--that matters.

The FCM way of programming in the Third Foundation of G15 PMN is compatible with a strong focus on process. You see this already with the G15 PMN FCM Spreadsheet. The 'master control' fund in the spreadsheet program is called on like all the other funds, by a program loop that 'polls through' all the funds that are marked 'active'. This means that when the 'master control' fund is going to read from the keyboard, it must pause a slight moment--it calls on the ACTIVEPAUSE pmn function--so that it gets a chance to pick up something from the keyboard.

When you run the spreadsheet, every formula produces a fresh value each time, when it is in the ACTIVE mode. This

shows up as a kind of liveliness about just those numbers. I mention these points to show you that when you are programming in the G15 PMN FCM approach, you are already, by the very structure of FCM in G15 PMN, called on to think of process--to think, indeed, also of how long time it takes to perform something and to 'let go' of the performance to let other things perform and to continue where it left off.

Since the 'master control' fund of the spreadsheet is just a fund inside the FCM node network, it follows that you can--without going back and change the code of it--just by adding more nodes and allowing them to modify the active parameters of the 'master control' fund--use the spreadsheet FCM for just about any type of program at all, including one with a totally different usage of the keyboard. That is the idea behind talking of the PMWORKS approach--which is the Third Foundation plus the spreadsheet plus the pattern matching elements we worked out in doing the third volume of this series (ie, the 'patmat sheets' app)--as a kind of extra a foundation--playfully, a 'fourth' foundation idea.

The early 20th century philosopher Henri Bergson was one who suggested that the flow of time is a concept that is intimately tied up with the sense of creative life and consciousness and awareness. This is not wholly at odds with a thought that at some extremely high level in cosmos one can see what appears to be movement at one level to be a structure (ie, determinism). Bergson, it appears to this writer, pointed out that life, creativity, attention, mindfulness, involve there being a sense of the now as a flow in which not everything is statically present at once--but something is present, and something else (and through this view he was led to challenge some of the more general philosophical opinions by Albert Einstein, who called into question the value of the idea of the 'now').

Indeed we can say that consciousness involves some kind of timing as part of its 'atom': this time is more real if it is not wholly determinate, but involves some fluctuation--within a meaningful range. The time element is not the only aspect of consciousness. Consciousness also has in it

something rather than nothing--unless we speak of very intense meditative states in which nothingness may be said to be its chief characteristic (which Patanjali talked about). This something can perhaps be most generally summed up to be a 'response'--a 'meaningful response'.

That is to say, when we are consciously aware of something, we have a state of mind which in some sense is a response, a meaningful response; from that response, there may come more meaningful responses, such as an intent; the intent may be responded on in turn, leading to a goal; subgoal; thoughts of alternatives; action.

I think I let this part of this exploration be left on that note in this volume: be sure this is one of the grand themes, viz., the exploration of the most general statements of what consciousness is.

As for a robot, the more advanced the robotic FCM programming and goal-sorting gets, the more tied up to timing in various ways we find that the program gets. This is something we can now see as a very natural thing in that FCM indeed is an expression of our own consciousness in which time is (as Jeeves say) of the essence.

## CHAPTER 6: JEALOUSY AND PURSUIT OF HARMONIOUS THINKING

In sticking with the promise of jumping also into psychological themes, not just speak of technical themes, in each of these volumes, let us again bring up the theme of jealousy and related concepts such as envy. There is a good reason to do so: it may be argued that there is one chief factor that causes disharmony in all humanity, and that is the jealousy factor (or envy factor). And it is such a deep thing that it can very often conceal itself from attention and be a feature, a sort of virus in the mind, that actively disguises itself as a series of other emotional things.

Baruch de Spinoza famously held the opinion that a key to own harmony is to understand the other person; he held

that 'it is hard to hate that which you understand'.

In trying to understand jealousy of its various types, let us, to begin with, assert the following: only a person who is very mildly attacked by jealousy--ie, who have a foundationally solidly harmonious and loving mind--will have an easy time admitting to it frankly and stepping out of it. In all other cases, when the jealousy is deep, it can also be hard, it can be tough, it can make layers upon layers of deception, wrap itself in inattention processes and work quietly like a brooding illness.

What is important for a loving, beautiful person of a compassionate intent to realize is that the mere fact that you are such a person may be why you find that some people are 'impossible to heal'. Your very presence may be what excites their rage--or whatever it is--and no matter how kind you are, how sincere, how exploring, how indeed healing you are, you may find that the person is rigidly defending, as it were, the disharmony within.

To take a clue from Spinoza, consider that the person is to some extent helplessly trapped in own jealousy. It is not that the person stands 'behind herself/himself' and sort of 'decides' to be jealous. The jealousy grips the person. It slipped into the mind as a greed to be like someone who it is impossible to be like. It slipped into the mind because the mind was dull and sleeping; just like a cold or flu can come into a person's body when there is an exhaustion, perhaps due to under- or over-eating or due to coldness or fatigue. The breath of another, who may contain a bunch of microscopic bacteria or virus of some kind, would normally not cause anything: but the fatigue, the lack of full presence of the immune system, made a vulnerability; and when one has the cold, time will help to heal it--but one cannot normally just 'decide' to step out of the cold.

Similarly, one cannot just 'decide' to step out of jealousy, even if one is at some level honest enough to oneself to admit that one is stupidly craving to be something one cannot be. The jealousy arose because of an inattentive, perhaps exhausted moment in which a nurturing of impossible or unrealistic ideals begun. It sowed some kind of misplaced, mismatching structure in the

brain/mind system. That bred a lot of dis-emotions. These circulate, make one thing worse, a second thing worse, a third thing worse, so as to mutually reinforce a negative self-conception that further contributes to a sense of apathy or depression or sadness or rage or anxiety.

Even if one can, realistically, improve oneself--for instance, a fat person should stop eating that many meals pr day and likely start exercising more--if one gets trapped into a jealousy--let's say over the slenderness of a more slender person--the pain of the emotionality may lead to a phase of disharmonious action. This action may add fat instead of removing it. The goal may be realistic but it is made unrealistic because of the greedy, desperate, non-playful approach to the goal.

That is not to say that by 'loving oneself' the fat person automatically eats less and gets slender. Fat people who 'love themselves' and thus do not have a 'negative body image' keep on being fat and thus keep on being a danger to their own health besides radiating an ugly attitude to life to others. (The fact that this sort of statement has in some societies become politically incorrect merely shows that politics doesn't deserve the emotional value it has been given in these societies; the fact of the dangerous of obesity is one of the most well-established fact in modern medicine as of the past century and ought to be appreciated for what it is, apart from politics.)

The way to relate to goals is to objectively look for meaningful goals, and constantly revise them, having an as playful attitude one can muster about the achievement of these. If one cannot muster playfulness in oneself, one is on a pathway of incoherence, and incoherence means, ultimately, death: and so one ought to give oneself the question of whether one is stuck in a groove and whether one can find a way to cultivate harmony and a love also of that which one cannot possess, but which is worthy of loving in an objective sense.

A person who correctly sums of a bodily feature of himself

or herself as ugly will not get coherent by pretending the ugliness is not there at all. Rather, the coherence comes by objectively loving that which is objectively beautiful about oneself and about others, while obviously not putting one own's ugliness on display as if to prove one is beyond self-condemnation. Ugliness ought to be hidden, just as one ought to wash one's hands often and one ought to cleanse one's breath before talking with others and one ought to bath and shower often and have a nonsweaty odour. But the ugliness does not need to drag a person into the mud even if it is seen as ugliness. And it is true that some of the most beautiful people speaking in terms of how they can look given good make-up and great clothes when photographed by a great photographer, may be having strong features that, when causally photographed, can come out as ugliness. And, vice versa, some of the most obviously "360-degree pretty" people, who look good almost from every angle and in every light, may not have the character required, even with make-up and a great photographer, may in some cases not make it to the "top ten list" when it comes to be the most beautiful person on photo.

Let us for the record also note that there are clear differences not only in between what we can call 'feminine beauty types' but also as regards feminine and masculine beauty--and that it has, thankfully, become rather self-evident in many societies in the 21st century that women can indulge in masculine beauty features almost limitlessly, even so as to wipe out the whole idea that the territory of masculine beauty chiefly belongs to men. Even the concept of 'man' can in an enlightened sense be used, just as boy, guy etc, about women; and some of the most striking developments in fashion have in a sense seen that the feminine culture now is omnipresent.

These are some of the larger perspectives that may help induce the jealous person to find a fountain of generosity inside herself or himself. As the decades go by, the challenges may be tougher: especially so for those who have had the great luck of being the absolute center of attention perhaps because of own beauty, charisma, and/or

intelligence, and who, after the bite of time, feel that disinterest is the main emotion they evoke in others. This bite of time gets worse for those who do not look forward to a next reincarnation, but who stick to the idea that there is one life. Those who look forward will be more coherent and hasten death; those who don't look forward to a next life will be less coherent and paradoxically seek to expand their disorderly, discontent, raging emotionally base mortal existence.

As an Indian thinker some time ago was reported to say, only those who have faith in reincarnation can have dignity in living. It is probably true regardless of hinduism--as this writer sees it.

Jealousy may conceal itself as 'anger at others'. Such anger may feel as it were 'justified' simply because it is an intensity that is other than sadness, and that sort of shoves sadness temporarily away and perhaps have a slight glimmer of hope in it; and if the expressed anger can be seen to have a sense of projecting guilt to someone else--especially if that someone else is indeed the perhaps secret object of the jealousy or envy--it may be felt to be a 'strategy' to get out of the 'depression' that is caused by the jealousy. However of course it is an incoherent pathway, one that is at best self-destructive. The jealous people are, when hardened in their jealousy, deserving of no other term than 'bad'. Their goodness can be re-evoked only by a complete fierce revolution of mind which re-instates generosity and which culminates in humility; it is the fight against humility that is the final vestige of the jealous person. By surrendering to humility, the jealous person rescues own sanity, and throws away the false strategies. The false strategies may for some be anger, but it can really be anything absurd at all--involving for instance that which is sometimes called 'paranoia'.

For instance, a person who has been the centre of many people's interest may try and hide the fact that the person is no longer worthy of such interest by pretending to be in a state of escape from pursuers. The rush of emotions associated with 'being pursued' has some remote



similarity to this person's experience of being fancied by many perhaps a decade or two earlier, and provides a less painful emotional state than the sense that all own bodily youth has been eaten up by the decay of time. It is a state of constant illusion--and may lead the person to altogether leap out of having a relationship to anything or anyone, and in which language is seen merely as a tool to renew the state of being pursued, rather than as an instrument to explore reality.

I mention this merely as an example: the point is that jealousy, or envy, in some form or another can be argued to be the only real essence of the human ego: and that those who are most far from being in a state of youthful exuberance and deliciously freshly shaped limbs and pure skin and playfully young agile mind with good memory are also the most likely to get trapped into the pathways of insincerity and destructiveness associated with the greed of being, in this body, somebody they cannot be.

An education that talks honestly and strongly about this to youngest children and prepare them for the horrors of the decay of time and the splendor of having faith in reincarnation is likely to create a society of less jealousy-infested people. Indeed, that is one way of formulating the essence of the idea of a collective enlightenment.

What can help the person who is far into jealousy, and who maybe has not had the benefit of such an education? Time combined with repeated affirmations and prayers for inner harmony, for renewed inner generosity, for reewed inner humility and less greed and more meaningful goals. Prayers that are statements inside the decayed mind towards a higher or more subtle aspect of mind and life and existence, statements that call on healings and perhaps these little miracles of healings of minds that sometimes do occur.

## CHAPTER 7: THE RE-SORTING OF GOALS

The art of thinking involves the constant intelligent creative cultivation of the coherence of mind.

A coherent mind embraces all life, and is not afraid of leaps in themes--the technical, the philosophical, the psychological, the sexual, the sociological, the artistic, and so on, are all themes that an upright enlightened individual naturally relates to, light-footedly, musically --and a book on thinking worthy of its name must reflect some of this musical flow between themes which to more limited minds may seem to be disconnected.

In this chapter, we proceed with more technical themes.

The world is in change, is in flux, and, considered as a whole, we can of course say that it is alive. Inside of this world, we can have a PC and to that PC we can connect stuff that, together with the PC, evokes the concept 'robot'.

When the robot acts in this living world, it is presumably to help us humans. In order for it to do helpful things in a living world, it has to have a program that contains a formalized form of some of our assumptions about this world. The program, in other words, can only exist if we assume that some parts of the worlds are stable.

Now this sort of thing can be said about any program we make; but when the program actually informs motors to do their whirring and roboarms to grip and lift and move and put something down somewhere else, it matters in a very concrete and immediate way that our assumptions about the living environment in which the robot exists made sense and got formalized in a good way inside the FCM app, our G15 PMN program.

The more specific tasks, or 'duties', we set a robot to have, and the more specific environment, such as a workshop with tools, it is to carry out its tasks, the more easy it is to make the program. Say, when the little table with the wrench is always on the left of the robot, we don't have to bother about analyzing what comes in from the camera and scan the whole workshop for the wrench. A

simple command to move a roboarm to the left and grip the wrench may suffice. And yet, all these assumptions may the robot act wonderfully well when they are right, and when these assumptions do not hold up, the robot may make a mess, and with a powerful robot, we must work around the clock to be sure we have made as sound robotics programs as possible; and have arranged the environment in an as stable way as possible.

The robots in a factory in which the only other moving things are other robots programmed consistently, can keep wonderful order by analogy with how a set of functions can add to, and take things from, a common set of variables or matrices in a program. As long as things are ordered in a predictable way, a robot can contribute to the human-desired goals in a solid and good manner.

In putting the robot to work in a far more complex and dynamically changing environment, correspondingly more effort must be put into the analysis of the input from such as the cameras; and the program must spend much computational effort not only in getting a good map of the living environment, but also in getting a good set of subgoals, timed to the changes of the environment moment by moment.

And all the actions of the robot may have to be completely suspended when the program considers that there is a risk of lack of harmony relative to the highest priorities, which includes ethical necessities such as not harming anyone or doing some unwanted damage on the environment. This risk must be reduced not only by evaluating how likely it is that the map of the living environment that the program has compiled is accurate, but also by evaluating the likely range of effects of its pathways to achieve the goals the robots have been given.

A pathway involves getting through subgoals in order to satisfy various goals, typically in a right sequence, and typically so that several subgoals must be translated into physical action only at certain right moments.

A goal of some practical nature for a robot to do something in a corner of a room may involve it getting a motion to get to that corner; which involves a subgoal in setting forth a direction and starting a movement in that

direction; but before it can do that, in case the room has people in it, it must scan that pathway. If there is a practically weightless balloon in its path--eg, a leftover from a party--it may make perfect sense to just move on and ignore the balloon. The scanning of what is in its path may lead to a projection of what may happen, with some likelihood, if it does go on in that direction, compared to what may happen if it goes a little to the left or right. The advanced FCM program may forecast a scenario and may evaluate this scenario according to the highest priorities and check if all is well with moving ahead.

On its pathway--to continue the example--a casual scan through the cameras of what is at the ground may trigger an analysis--or synthesis--or 'match', more properly--with a residual top goal. Perhaps the robot found an item that has long been sought for by the humans in charge of it. This long-lost item may be far more significant than a carrying out of the original task, the original goal; a sudden re-sorting of the goals will take place and the robot proceeds to pick up the item or inform the humans of the location of the found item.

Yet in order to do such a thing as a to grip that item, or inform the humans, the robot may have to let go of something else it is carrying, which has perhaps great value in itself: and to properly let go of it, it may have to re-trace its steps back to where it picked this item up --and get back to the long-lost item.

The oft-repeated sorting of goals that a robot must do, together with not only a mapping of the living environment it is acting within, but also of a mapping of likely developments, or 'scenarios', related to some of these goals and/or subgoals, is at the core of FCM in any complex situation.

## CHAPTER 8: ENTRAINMENT AND CREATIVE AUTO-ENTRAINMENT

Programming a robot is a good exercise in the skill of thinking clearly. There is no goal in making a robot so that it 'programs itself': that would spin out of control, because a robot got to have digital rules at the bottom of its processes; these cannot be random. They must be fixed. These fixed digital rules can juggle around many things in the computer's RAM--for instance, by updating a matrix or set of matrices to reflect incoming data from the environment as matched over by FCM--but these fixed digital rules got to be there; that's the nature of the digital computer. Take them away, and there is no computer and, hence, no robot. And it goes without saying that a set of digital rules are not mind. They are not Intelligence, not by any stretch of the use of that word. Rules aren't "smart": they can be made smartly, so that they work well in some context; but the smartness is that of the human programmers. The smartness doesn't get 'transferred' into the computer unless one is in the region of soft-minded scifi. Rather, the smartness can be expressed as a program, just as smartness or other mental characteristics of a human mind can be expressed in a book manuscript, a photo session, a dance, etc.

That is to say, robots aren't intelligent, they aren't smart--unless we use the word in the sense, "they are programmed cleverly". Not that they are clever programmers! A programmer is human. A program is what a robot has got as its "most" mental feature. And a program is a bunch of rules. That's it. That's what it is.

A programmer is human: but of course it is a trivial and simple matter to make some programs that make programs. A program-generator program isn't "a programmer", because the word "a programmer" implies a living perceptive intuitively intelligent human mind. A living mind can engage in meditation, self-contemplation and through that an infinite self-reference. A program is a digital limited format that can throw some numbers around in a pre-determined way, and will never have one bit of consciousness by itself, nor can fixing up quantum tech improve that point. A human being, or several human beings, can

invest a computer process and a robot process with a consciousness through their living aware-spontaneous interaction with intuitive sense of timing--that is something entirely different than to say that the robot "has" mind or intelligence or that it "is" a programmer.

Relatively Free Fluctuation Generated numbers: these numbers look much like they have been made by 'chance', because they don't have an obvious sequence. If you boot up a G15 PC and, repeatedly, type in a number like 5, and ENTER, and type in the two-letter command AF, for 'A Free fluctuation number', you might get a sequence like 3, 2, 4, 5, 3, 3, 3, 2 or it can be 2, 3, 5, 2, 2, 4 or it can be 3, 2, 1, 1, 1, 5 or any of the other very many possibilities. If you have five numbers and they can each vary from 1 to 5 that's  $5 \times 5 \times 5 \times 5 \times 5$  variation possibilities. The RFFG functions in a computer has a slightly messy bit of arithmetic in it to try and spread out numbers rather 'freely', but it is not free. Yet it has a pattern that's hard to determine because, for instance, it is using as input the fraction of a second of the computer clock in the moment in which you are requesting a fresh 'free' number, and adding or dividing or multiplying this up quite fiercely with the previous number that the same function provided, unless it is its first call. Or something like that.

RFFG is only good when paired with good control rules in a balanced way. To put RFFG dots on the screen doesn't lead to an orchid one day, a wase another day, and a perfect acrobatic sex act the third day. Rather, it leads to a sprinkling more or less as if you put some powder on the floor--except of course it can be associated with stars if there are not too many of them and they are bright and nice against a black computer screen.

A robot cannot 'learn': but it can do more than be programmed, and more than 'be entrained' by a human interactor that uses a program to show what motions the human wants it to have in its repertoire.

We can of course go one step further when it comes to

entrainment, by clever use of RFFG and putting the robot in a very safe and thoughtful well-controlled context that we in G15 PMN call a 'creative auto-entrainment workshop'.

An 'entrainment workshop' is a place where a robot cannot do any harm because it is set up to move about among things that are robust enough, or discardable, nonvaluable items, so that various tasks of the robot can be 'shown' to the robot.

When we are talking of 'auto-entrainment', we are talking of RFFG leading the robot to 'explore' the environment: and with a wide range of possible goals in the background, and a good goal-sorting routine, and a workshop in which the robot, through a 'creative play' with a range of pre-programmed task possibilities can 'discover' suitable methods of achieving certain goals, the FCM matrices can store the best approaches that arose more or less by chance. The auto-entrainment workshop can be set up so that, given a clever FCM program and given enough time given to the robot (different time for each robot because of the use of RFFG), the humans can go in and extract the best fruits of this 'learning' process and properly configure the robot to do useful tasks.

For all this to work, the FCM must engage in a mapping and and forecasting of effects of the living environment around the robot, and match both the reality and the forecasted reality against the pre-designed goals; and give a range of probabilities, measured for instance in permille--from 0 to 1000--that such and such is 'certain' and that such and such is 'goal-satisfying'.

More than one robot can be set up to perform in an auto-entrainment workshop context, but it is requiring a great deal of careful thinking how to do this right so the robots have implemented care relative to their handling of each other.

Everything we have said about higher priorities, ethical necessities and so forth, programmed deeply into the nest of the FCM driving the robot and the robots, must be done

with triple attention when any use of creative auto-entrainment; and very thoughtful testing of the whole range of robot activities must be done before putting a robot, or a set of interacting robots, into real action. It is part of this that entrainment options are turned off and that especially includes creative auto-entrainment: though for particular contexts, in particular ways, some degree of entrainment can be turned on again during practical work with the robot. This is akin to a bit of what for a human would be 'daily extra learning' in an environment in which there already are good enough skills.

Since no program can be trusted absolutely the human in charge of a robot must have a variety of ways to switch a robot off. And when certainty is below a certain threshold set in the variables called on by FCM, the robot must itself suspend all action: it must have a variety of RFFG-induced 'interpretations' of reality and check that things are having a high certainty of being good relative to all higher priorities. The more humans a robot is in touch with, and the more sensitive humans, and the more sensitive connection, the more certainty that all higher priorities are respected matter.

#### CHAPTER 9: UNDERSTANDING OTHERS IS MAGNIFICENT

Part of moving about as human beings is to relate to other human beings, and this is spiritually and, we might say, "intellectually", quite a sizeable task. By enquiry into ourselves and how we function and how we engage in the immediacy of unfolding relationships with one another when we are at our best, we can approach an understanding of our spiritual depths--the real sources of our fuller, deeper intuition, awareness and intelligence.

And in learning about how we relate, we can get ideas for how to sketch some of the FCM programming for robots. FCM, first-hand computerized mentality, implies, of



course, that we understand something of our mentality.

As Martin Buber and others much later, including my father Stein Braten has worked with, the understanding of another as a You is a much more complicated phenomenon than what Buber called an "I-It" relationship. In other words, the other human being as a living person, as a You to you, is someone you relate to when you do not merely see the other as an "object" or an "instrument". The pulse of relationship involves an interconnectedness in which themes such as empathy and 'putting oneself in the other's shoes' are naturally called on.

A person who is very sleepy and tired may not be up to fully engaging his or her own mind: memory patterns and behavioural patterns associated with bits of the brain may be used instead of mind, and this is a more 'animal' state of behaviour. In waking up there can be a relationship. The way I see this myself is that the understanding of the other person involves spiritual structures and that we engage our souls and spirits when we relate to each other in what Buber called an I-You sense. My father has theorized over I-You through what he calls the 'virtual other', a companion space we're born with, as he says, and which is a readiness for immediate direct contact when an actual other person 'steps into' this companion space; a notion which has got some attention amongst researchers also on child-adult communication and child development.

In my own understanding of this, I suggest the following: the mind is most properly your soul, or in plural, your souls, and yet more deeply your spirits. To relate to another means more than mere 'simulation' of the other; it means a direct relationship which also involves a sense of all the 'potential dances' on all levels that can take place. This is something demanding a vast and subtle and immediate type of structure, which in super-model theory I sometimes categorize as 'q-field'. This type of structure involves empathic intelligence through processes more subtle than the measurable part of the human brain.

To have the understanding of others readily available involves a sense of being ready to comprehend feelings and perceptions of the world and of you yourself and of anything said in a way which is connected to where one or two or some or many people are coming from--where they are --in terms of world perspectives, ambitions, feelings, patterns. In some contexts, some have suggested that those who do not engage in such understanding can be called 'autists'--a word which associates, its roots, with the more common word 'self-centeredness'. Over-self-centeredness can be considered to be a form of stupidity. It is in this state of stupidity that others are merely objects or instruments rather than actual others.

In understanding other people, therefore, the mind is called on in a way that reflects something of its true and spiritual depths.

Naturally, a computer program can only mimic a tiny fraction of any such process: a Personal Computer can and should however, in some contexts, not just anticipate the physical effects of possible actions in the living environment, but also anticipate--or let's use a less mental word, let us say "project"--the program should project also something of the mental structures of the inhabitants of the living environment. A robot can have projections about not only how other things and robots may react or will act on a certain time, given the flow of how things unfold and how certain possible tasks are performed --but can also project likelihoods that such and such ideas may be formed in the minds of humans which are in its proximity, and that these may act in such and such way given that a certain pathway of action is taken by the robot.

Such back and forth simulations of a projected reality in which the projections of other beings inside this reality form an active part are, needless to say, easily becoming extremely complex and beyond what can be expected from what we want a good standard 32-bit PC to do. Yet this also means that robots must exist only in limited contexts.



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