# THE ART OF LOTTERY NUMBERS PREDICTION

# The "G.A.T. Engine" project - by Anastasios Tampakis

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#### August 2012

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#### **INTRODUCTION**

So we are preparing our entry for the next lottery draw and we have some confidence that we should get a good result because we are using a process to help select our numbers. We use this process because it is repeatable, it relies heavily on strong statistical analysis, and once last year we got a good result but we just haven't had any luck in the meantime, but this next time we expect to get the desired numbers. Or you choose your numbers by following everyone's birthday, but it would be nice if only one could have been born on the 47<sup>th</sup> and then I would have a better spread of numbers instead of them all being under 31. Or I have watched this lottery for years and I notice number 19 always seems to come out if number 5 was drawn the week before. Number 10 hasn't come out for 16 weeks it has to appear at the next draw surely? And so on with the number selection techniques. Or to hell with all of that, I am into quick picks - why bother with all that analysis?

The reason we all go into the lottery is to hit the big one. Unfortunately very few of us get to hit the big one, but might there be some process or technique that will either get us close or that we can at least play regularly with 'their' money. Given that the people reading this will most likely have some favorite software tool for processing or analyzing their draw data history and their favorite software has the most powerful set of statistical methods yet devised – why is it that I get a result so spasmodically from my analysis? Lady Luck never seems to be about with me. But then if my software is so good why should I keep thinking of Lady Luck? Isn't the software or its analytical approach meant to find those good numbers? My software can very easily sort out the numbers to go into the hot cold and due baskets but those drawn numbers never seem to behave the way we expect them to. Perhaps it is due to the fact that those numbers down at the lottery commission don't talk amongst themselves enough – my turn this week says ball number 19 you had your turn last week ball 5 and then number 10 puts his hand up I haven't been out for ages I need a run in the sun. If only.

With modern PC's and modern software we have extreme processing and analytical power, but as we shall see in the following discussion using statistical method is the limiting factor – in fact, as will be seen, it is an inhibiting factor; it is limited by the data we have to work with. At the extreme i.e. draw number one, six numbers will come out, what statistical approach do we use for the next draw? And at the other extreme every possible combination has been drawn except one – what are the chances of that last remaining number sequence to appear at the next draw? Our software can tell us a heap of facts but the numbers aren't listening. Consider the scope of a 6 number 49 balls lottery – about 14 million separate and unique combinations, our window of analysis may be across just a few hundred or perhaps a few thousand of these combinations. A 20 year lottery drawn once a week is up to about 1040 draws – barely a sample size.

Also in the following discussion we shall read about randomness. Where do lotteries fit in regard to each draw being a random event? There are many opinions - some think they are biased so as to favor the lottery commission or State, some think they are purely random because they do a pre-lottery test to ensure the balls come out randomly (how do they do this? how do they know if it is not random?) or the machines are changed or the balls are changed regularly. And then is there a condition we can describe as reduced randomness? The discussion explores this concept at some depth. Can we measure reduced randomness? Can we say the lottery operates with reduced randomness with a bias of 5 degrees? No, we can't but what we do not know about the lottery is the potential for probably zillions of minor forces to be at work - paint density, wear in a bearing, humidity levels, rotation for slightly different time durations, temperature affecting the size of the container and so on. All these forces are un-measurable but might their effect be captured somehow? If an analytical approach based on statistics is unsatisfactory what other approach might be used? Is there a prediction machine that will do a better job and so give us a good chance at the big one or at least give us a regular result? Is a number set derived from statistical analysis a prediction or just an outcome of some defined algorithms? Or does there need to be some purposely built process that is free of cycles, rhythms, hot cold due baskets, neural networks, regression to the norm and methods of least squares. Can there be a prediction process for the lottery? There is a prediction software available (since December 2011) and its name is GAT (abbreviation of Global Augmentative Tables) and it is within the stable of lottery oriented software by Anastasios Tampakis who is otherwise known as Lotto Architect. In the simplest of terms GAT uses some proprietary mechanisms where the 'signature' of the lottery is first determined and then past draws have a prediction made against this signature (prior to the draw being known) then the prediction is assessed against the actual draw and then any benefaction is passed on to the next prediction attempt and so on. Not all predictions are good but internal processes allow the user to select the best outcomes. GAT is not constrained by data limits - the prediction process is entirely open ended – tens of millions of predictions can be made with the likelihood of better predictions being found with the more of them that are generated.

Please read further about GAT – why and how it is different to every other lottery prediction process and also in fact why it is better than any other currently available prediction or analytical process.

#### **ODDS**

Yes, the lottery commissions design lotto games with odds heavily against the player. It was always like that, it is like that, it will be like that in the far future. Even the wins payout compared to the cost of play is still against the players. We have to understand that lottery games are designed to make primarily profit for the state running it. To make things clearer, I'll use as an example the most popular lotto game in the world; the 6/49 game where we draw 6 balls out of 49. If you match 3 or 4 or 5 or 6 correct balls, you win a prize and

we play 6 number entries to compete against the 6 drawn lottery numbers. Chances to match 3 correct numbers are 1 in 56.66, which means, we have to play about 57 draws to get this prize based on odds. Of course, you'll spend 57 cost units to win back a very small prize which may be just slightly above the cost to play - let's say you'll win back 5 cost units. So, you spend 57 vs 5 win potential; hardly competitive to begin with! So, really, it turns out that you have to be very lucky and either win small wins regularly to keep you in balance or hit the big ones (5/6 correct) and so get to the big profit side. Since odds are heavily against you, in the long run your balance will be quite negative unless you hit the big one as we assume your luck will not always be there to give even those small wins regularly – if you are so lucky I'd like to meet you anyway and play some tickets together<sup>(3)</sup>. This is what happens when we cannot perform better than pure luck at picking numbers – the odds dictate that – so with our lottery play we can almost guarantee we will operate at a big loss.

#### WHY IS IT SO HARD TO MAKE A SUCCESSFUL PREDICTION? IS IT POSSIBLE?

The discussion above leads us to the most obvious question: "Can we actually predict numbers and perform better than odds suggest"? If so what technique might we use to try to make a prediction of the lottery numbers to appear at the next draw? Go ahead, get a draw history of your favorite lotto game and look at the results. Can you see anything, even remotely, that can give some clues as to what will come next? 99.99% of people will say "I see nothing, it's impossible because it is random". The other 0.01% will say "I can see something, I feel there is something but I can't figure out what it is". There might be a few people who actually see something there for them to take advantage of; we can't rule this out – humans are amazing entities - although I have not come across anyone capable to doing that so far, and I doubt you have too. The consensus would be that we are at a dead end, but there always seem to be lingering questions about the lottery event and its predictability.

The questions that hover around are "is this thing really random" or "is it rigged" or "is there something that makes this not truly random and possibly can be used"? To put things clearly up front and obvious, **IF A LOTTERY DRAW IS A PURE RANDOM EVENT then there is no way to even remotely approach any possibility to achieve even slightly better predictions above odds**. The other two later cases (not truly random or rigged) actually give clues that a prediction might be possible after all, even remotely, either by the form of a bias (the effect of rigged draw or having imperfect machines/balls) or by an unimaginable complex mechanism of nature, which we are yet unable to understand, that produces the draw results.

So, the next step is, to question if a lottery draw is a random event or "less random/rigged" if I may use this phrase. It is really hard to answer this question, if not impossible. We must have a huge history available to analyze the results and conclude via statistics if there is some sort of bias in the results. The current histories available are really too small to conclude anything. Even if we try this experiment at home, with our own home-made lotto machine, we have to ensure at least that the same principles are applied to the commission lottery machines. And even if our statistical analysis shows a random or not random outcome, this doesn't mean that the commission's machine produces random or not random results. It is really a different experiment and therefore we can't conclude anything about it using results of a different experiment; again, a dead end! However, there is a small hint here that gives hope for a possible prediction: if lottery machines really produce random results, there wouldn't be the need to constantly change drawing machines and sets of balls. Of course someone might say, they do this because the balls/device wear out with use, or just as a precaution. Maybe so, but they do swap balls/machines very often. I'll not go more in this; it is just a hint that things might not be as random as the commission hopes they are.

We really can't make something out by looking at a history. Perhaps we could use tools to do the hard work for us? That means to try and analyze somehow the only information we have available – the history drawn so far – and possibly conclude something out of any analysis we may apply. This takes us to the following discussion...

### **COMMON KNOWN APPROACHES – TRY AND FAIL**

Ok... you probably have flooded your mind with every unbelievable possible system invented all these years. Just to name a few: hot/cold/due numbers, weighting numbers, skip charts, simple numbers occurrence statistics, pairs-triplets etc. So, what is the problem here? Let's have a look at these in more detail.

- Hot/Cold/Due systems: The logic here is to pick a couple of numbers for the three sets created, e.g. 2 numbers from the hot container, 2 from the cold and another 2 from the due container or a variation of this scheme. Hot is considered any number which has been drawn within the last 2-3 draws, cold is any number not in the hot container but within the next 5-6 draws or so and due any remaining numbers. Another variation splits the numbers in accordance to how many times they have appeared within the last 10 draws or so. This makes no difference really, the results are the same. We end up having numbers drawn from all over the place. It doesn't matter if we have a due container although logic would say "pick from due because they are due to come that's its name for goodness sake"! This doesn't work because it has an elementary but very IMPORTANT inherent problem: the balls do not have memory! A ball will not say "hey I haven't been drawn for the last 10 draws; I have to come out now".
- **Skip charts/simple numbers occurrence statistics**: exactly the same problem with hot/cold/due. Numbers do not have memory therefore impossible to follow any observable skip patterns.
- Pairs-triplets: Here we try to figure the most common occurring pairs or triplets of numbers. In order to do that, we have to examine a larger history range to obtain this information. However, whatever we may conclude about a given pair can only be applicable as a whole in an almost equally future range of draws; we can't expect a given pair to show up at the next draw because it happened to show up more times among other pairs in a history of 100-200 past draws! As an example, if we managed to identify that numbers 05 14 e.g. show up together 10 times within the last 200 history draws, the only possible estimation we can make is that we possibly can expect this pair to show up around 10 times again in the next 200 draws! Hardly any useful information to that. The problem here is a general drawback we have when we use statistics to analyze our game. Whatever we may try to analyze with statistics, we have to do this analysis over a good range of past draws, let's say 200 past draws. We may actually conclude something useful but this information will be useful only at a "macro block" scale, which means we can estimate that some property will hold true within the future e.g. 200 draws - and this can only be true if the draws are actually non random - or the machine is imperfect and has some bias - and we have clearly trapped a bias within that 200 draws analyzed. Nothing can be concluded about what will happen at the next draw however. So, this heavily implies that for any analysis that uses statistics, no matter what property is analyzed, we cannot estimate what will happen at the very next draw. This includes the weighting numbers and other such approaches too which are other methods of applied statistics. It must therefore come as no surprise that any statistical method chosen can do no better, or even marginally better so not to dishearten fans of lottery draws statistics, than pure luck. A dead end again. The consensus:

statistics for lottery draws do not work when trying to estimate an outcome for the next draw – statistics are only applicable at a macro block scale!

#### **MORE ADVANCED APPROACHES – TRY AND FAIL AGAIN**

Advanced mathematics offers even more approaches for number analysis: e.g. neural networks, best fit curves, least square methods whatever. Things get more complicated here but I'll try to give some answers as to why even these methods cannot be successful.

- Neural networks: A neural network has the benefit that we don't need to know any actual rules as long as we know a given input produces a given output. We just train the network so to respond with the same output for the given input. Although intriguing to its concept and with actual real applications that truly benefit from neural networks, this approach assumes that a specific sequence of history draws (or some property analyzed) owe to always produce the same next draw (or value of that property)! I consider this as inapplicable, therefore neural networks in my opinion have no chance to provide any benefit in lottery draw prediction; now neural network analysis can provide an amazingly sophisticated process for use at a lottery game, but basically what the network learned from the preceding data can have no bearing on which numbers eventually appear, because of this small detail!
- Best fit/least square: these are close cousins and in practice we try to estimate where are the best chances to have a number show up via averaged mechanisms of detected errors/spreads, and we usually end with a range that says "a number owes to show up around this range". I can't see the merit in such an approach personally since it will produce many numbers by using those ranges although there is some mathematical truth in these results. They have a loose definition of trends and trends can show potential however they are very broadly defined to be actually useful. If we try to narrow down the "width" of those trends, the inevitable happens the trend breaks down.

So, even with these advanced approaches we have a big problem to address (which can't be really addressed): the assumption that a specific sequence of draws owe to produce the same next draw! | conclude that such a thing is impossible to happen.

Finally I can't possibly know each and every approach of numbers analysis used all these years but chances are 99% of them will fall into the approaches described above or some variation of them. If you can identify in a proposed technique any similarity to the above, you can be sure that this approach will not provide some advantage in prediction.

#### **CONCLUSIONS SO FAR**

We have examined the prediction subject from various viewpoints and methodologies. We haven't yet answered if a lottery draw game is random or not, we can't answer that with the current history data we have due to the vast space of these games and the much smaller current history available, therefore randomness tests cannot be conclusive. We have established that any statistical method is completely inefficient to suggest what will come next and gives only answers to a "macro block" range of draws, hardly anything useful in doing that. We have established that neural networks are really not suitable for prediction because they are based on a prerequisite that a given range of draws always produces the same next draw which is probably impossible to be the case. Only God can answer that really, since this never happened in any lottery history as far as I know and will probably not happen in the next few thousand years of lottery draws either. And we all can't wait that long.

**Important to note so far**: Even if we determine somehow that a lottery draw is not really random or has some sort of bias embedded, the most important point is that we cannot use ANY of the above methods to estimate the next draw result, unless of course if there is an obvious and steady pattern detected! We may get average estimates on what will happen in a future range of draws but this is not enough and can't be used to estimate and say what will happen at the next draw, or even remotely get close! So, dead ends everywhere. Not a surprise really because if lottery prediction was that easy to tackle, everyone would be a millionaire now by using some sort of mathematical approach.

So, can we establish somehow if a lottery game is random or not? The inability to find a method that does better than pure luck does not prove that the game is purely random (and as we stated at the beginning, pure random events cannot be predicted). However, if we somehow magically could come up with an approach, obviously not based on the above failing ones, that does give better odds short and/or long term, then we have:

- Proved that lottery games are not truly random, at least those tested with this approach.
- Determined there are levels of randomness in events. To the far left extreme are "pure random events", in the middle are "reduced randomness events" and at the far right "fully predictable events".
- A Method that can actually digest this "reduced randomness" and provide some advantage to better odds against lottery games.

## SO WHAT IS "REDUCED RANDOMNESS"?

Here pure mathematicians will jump in and say "hey man, an event is random or not random, there are no levels of randomness". Indeed, from one point of view we can't say "this event has 5 degrees of random behavior" we can't apply discrete levels to that. However, if we are actually able to predict above the odds, but not fully and always predict a future outcome, there must be an intermediate level. It can't belong to the "truly random" left side of our scale neither can it belong at the far right where we can fully predict an outcome. We have to name somehow this situation positioned in the middle. I apply the term "reduced randomness" which implies that the draws (in the lottery case) maybe are connected somehow – probably a very loose connection if there is one - but definitely we are unable to find out what this connection may be by normal methods which means with traditional approaches we are unable to estimate the next outcome anyway.

A straight-forward example to demonstrate such a connection could be the application of chaos theory. Here we have a simple equation that produces quite random behavior as a sequence of results. If we don't know these results come from that equation and just observe the results, our response will be "hey this is random, I don't know what will come next"! True. However there is a very strict and defined way this sequence is produced, therefore the results cannot be random! If you try statistics or any of the above approaches you'll almost definitely not find the next outcome, perhaps the neural may provide some edge because of the simplicity of the equation which may be trapped by its internal nodes, but generally our response will be similar to that of lottery draws. There is therefore an obvious paradox. Because we say it is random, it doesn't mean it is since there is a perfectly defined way to produce these results! Now transfer this last

sentence to the concept of a lottery game. A lottery game has of course much higher complexity than an equation and an unknown zillion variables affecting the result and probably not a perfectly defined way that produces the draw results. However, the same principle might be applicable here. Because it looks random to us, it doesn't necessarily mean it is random too! **If someone says** *"lottery draws are truly random"* we can now reply back to him and say *"no, they are not truly random, we just don't know the ultra complex and unimaginable relationship underneath*". The scenarios can't be proved really! The paradox keeps getting deeper - the inability to find an approach doesn't prove the "truly random" behavior; neither does it prove that such an approach doesn't exist too! But the ability to actually find such an approach proves that it isn't "truly random"! So we proceed with this in mind.

At the neural networks discussion, we stated the assumption a given sequence of results to always produce the same outcome. I believe anyone will agree that we can't possibly expect such a case to ever happen. Those who are observant will stop right here and say "if this is the case, then there is no hope". If a given sequence, which we hope to find and take advantage of, does not produce a definite outcome for the next draw, then what is left to look for? They would be right of course! But they would be right within the context of a strict connection, if it is actually there. I define as "strict connection" anything observable such as a given sequence of a tested property that always produces the same outcome for the same sequence. If lotto draws had "strict connections" underneath, then we would have very good chances to use neural networks to actually trap these connections and win, or even statistics could help a bit. However, the inability to find strict connections, doesn't rule out the case of "loose connections". So, a loose connection actually is the mechanism that can produce a range of outcomes instead of a specific outcome. The term "reduced randomness" now refers to the possibility loose connections to exist which in turn produce a range of candidate outcomes. Neural networks cannot cope with this scheme because they require for the training only a specific outcome for a given input. So, what we really say here in simple words is that, a given sequence of draws may have loose connections among the results of that sequence which produce a range of candidates which are in accordance to those loose connections. There isn't a definite and only outcome, but the outcome should follow those loose connections. Our last hope is really the existence of loose connections. If those can't be found, then what is left is to accept that lottery draws are really random.

Someone might ask here, what is this range of candidates to pick from? I'll try to visualize this with an example. Assume a special type of glue connecting the balls (or perhaps think of glue as chewed gum). Its composition allows it to expand, shrink and bend in a certain way but with some flexibility of where it can land. Over the long run, this composition changes (this reflects the zillion of factors affecting the draw results). However among a small set of history draws, the composition of the glue remains almost the same but if a given number is drawn, it "grabs" different numbers based on how the glue behaves for the current composition. So, if e.g. number 5 is drawn, it will not grab another fixed number, i.e. 18, but it can grab any other number that conforms to the behavior of the glue, since it can bend, shrink and expand but only within the "physical limits" allowed by the composition. We really try to figure out this glue behavior here and use it to estimate the next draw based on the way this glue affected the results of the previous few draws. The basic principle here is that we don't treat the draws as individual numbers (recall numbers do not have memory). We assume the glue and the way it works produces an outcome as a whole and the glue is the "loose connections" discussed above.

# THE "G.A.T. Engine" CONCEPT – CLOSER TO THE REAL PREDICTION TARGET?

So far the story goes like this. Lottery draws outcome is affected by an unknown set of factors, definitely uncountable and unidentifiable. We don't know how these factors interact, we don't know if some are more important than others, we don't know if some are cancelled out. All we know is their effect which is the actual draws. If there was some pattern detectable in the long run, there would be some sort of cycles observed too in the results; as far as I can tell, nothing like that is happening. So we can easily rule out the possibility to examine a large set of draws and formulate possibly an approach based on these cycles. We have also ruled out statistics due to their "macro block" application and neural networks because their training depends on the belief that a given sequence owes to produce the same next draw too.

We really have ruled out everything except the possibility of loose connections in a short range of draws (the "glue"), our last hope really. Many questions can pop up right away, to name a few:

- How to find loose connections, assuming they exist.
- Whenever we assume a loose connection is found, is it indeed or we just inspect "noise"?
- How to describe a loose connection. Is it an equation, probably a complex one?
- Is there only one connection or more at the same time?
- How long does a loose connection last?
- What affects or "breaks" it?
- How much information (e.g. number of past draws) to examine for loose connections?
- How intermediate test draws affect the connections? Do we care about them anyway?
- Finally, how to use for prediction a supposedly detected loose connection.

Surely there can be other questions on that but I believe this list is representative. Well, don't expect details on the above but these are the principles encapsulated and exploited in GAT Engine. First, GAT stands for "Global Augmentative Tables" which are the structures used to support the randomness evolution process and hold the "signatures" information. The term "signature" used in GAT engine is actually a different name for "loose connections". Also the randomness evolution process (the variable glue mentioned previously) occurring at a given state (the GAT table we currently compute) reflects the various candidate outcomes we can pick from based on the signatures detected (in contrast to neural networks which only produce a definite and only one result for a given input). In practice, we can assume only one signature exists, which can consist of various other "signatures. This makes no difference really since the whole concept of "understanding and describing" internally a signature can also contain the effects of all existing loose connections – the smaller signatures. So, by detecting a signature, we might actually detect a component of various signatures and since a simple connection and a component (synthesis of connections) described in the same manner it makes no difference if it is simple or not. You might feel lost right now! Well, nobody said it is an easy concept to grasp, neither is it my intention is to fully explain this approach but only to suggest that is it actually possible to do this sort of analysis. It is even harder to implement really!

So what is the relationship between a signature and all those factors affecting a draw result? It is easy to say that a draw is random because the result is affected by zillions of factors. We can't enumerate them, we can't quantify them, so we can't use any information out of them individually! But what is measurable is the combined effect they have at the draw results. Are there indeed zillions of factors? We don't know, and honestly we don't care how many there are since even knowing that, it wouldn't help somehow. So in reality

we may easily say lotto draws are random because we assume a zillion of factors play their role to the final outcome, which can be true, however there can also be just a few factors that play the major role at the final outcome and our hope is really to measure their dominant effect on the results. The more factors actually affecting the result, the more loose the connections become until a point is reached a connection cannot be found at all. On the opposite side, the fewer the contributing factors, the stronger the connections become, which result in fewer candidates to pick from to generate an outcome which ultimately improves the odds to the point of picking even 6 out of 6 - even quite often. This is the extreme really because this assumes very strong connections that remain steady in the long run – and possibly produce even detectable cycles for other approaches - which possibly can't hold because cycles would be observable in that case. So, really our chances are to test only a few draws for such connections and try to find any possible relationship they "embed" which will not fade away and expect this to continue at least for the next draw to come. Under that expectation, we can get an improvement to normal odds but definitely given the "loose" nature of the process, there will be a maximum top bound of what can be achieved.

Some general observations regarding the performance of this approach, as implemented by GAT Engine:

- Quite often, we can observe a GAT table omitting entirely a range of numbers. Although naturally a
  player would say "why shouldn't I play any numbers from that skipped range", in practice it turns
  out that most of the time GAT understands within the data, reasons not to pick numbers in that
  range. Actually, it is quite correct in doing so, so this is a strong clue that this methodology does find
  "trends" and loose connections exist.
- Another quite amazing feat of this approach is that, it can pick a few correct numbers and the rest are usually 1-off from the actual numbers drawn. This doesn't always happen, but the regularity of this observation further enhances the belief that such loose connections do exist in a small set of draws. I have experienced this myself in the past too (I play a 5/45 game) where the actual draw was something like 02 10 15 28 30 (I can't find my notes on this win and the actual draw, it is buried somewhere) and GAT picked 02 10 14 22 30, that happened at my 3<sup>rd</sup> try of actual playing with GAT but also observed in various test runs. This suggests that for the bare minimum of numbers picked, a possible strategy is to play all combinations that are ±1 of the proposed prediction too. Applicable or not, it boils down to the budget available. Getting so close regularly is again a sort of "proof" that actual connections exist and GAT is finding them.
- Most current users run GAT for no more than 4-5 months (this text was written in August 2012). Till now, a few have already achieved a 5 hit and several 4-hit wins, some consecutively (one particularly achieved 4 times in a row a 4-hit). Their strategy is to pick around 12 numbers and wheel them to their budget which is no more than 20 blocks or so. The hits achieved are considered outstanding given the odds to pick 5 correct numbers when picking 12 in a 6/49 game is around 1 in 477 and the odds for a 4-hit when picking 12 is 1 in 42. That means, if we pick 12 numbers, we have to participate in 477 draws to match once a 5-hit and 42 draws to match a 4-hit on average. For a weekly drawn lottery game, 477 draws is about 9 years of waiting time and 42 draws is about 9 months. Given these users already claimed a 5-hit and a few 4-hits each within only 20 30 draws, it is really apparent that we have a boost of odds, which of course means, we can predict numbers up to an extent! And the ability to predict up to an extent, suggests that lottery draws are not really random, they have "reduced randomness" as I like to call this behavior. You can find more info on these hits at my forums <a href="http://forums.anastasios-tampakis.net">http://forums.anastasios-tampakis.net</a> (check the GAT Engine section).

#### A GENERAL NOTE ON PREDICTION VIA SOFTWARE

Lotto players generally assume that there can be a way to predict a lottery game and win the big prize with the bare minimum of numbers. The reality is that such an approach does not exist and must be considered impossible. A big result is more likely just a fluke of luck. Also the serious lotto player will have tested numerous programs that utilize the common methods mentioned above and will have probably concluded that the software was created by the author to profit from the players who buy it, or simply said the value of such analysis is for entertainment purposes only. As you will have read I do not support the various analytical approaches taken, they are primarily restricted by the bounds of the data analyzed i.e. the data is at macro block scale and so the analysis can really only give a result that looks like the data it was given. These approaches are not a prediction process. The GAT approach however is a true prediction process – it is not based on the numbers as an outcome, it is based on the lottery itself i.e. the reduced randomness inherent in the particular lottery where GAT uses a sample of the data to find this reduced randomness. In this approach it is not subject to the bounds of the data i.e. the draw history, it has the freedom to explore all potential possibilities that the lottery can offer.

Should there be some lottery software out there that regularly comes up with 6 out 6 balls I doubt anyone would share it and if there is I want to hear about it. However, the case of improving odds to the point of being profitable is well within reach; GAT I believe is such a methodology. It will improve the odds but it can't deliver 6 out of 6 hits with any certainty or regularity, but it can deliver good number sets so as to be rewarding in the long run. I can't comment if it is possible to improve further these odds, perhaps an even better and innovative approach might come out in the future, but again, while 6 out of 6 is always the target we really should think of it being an objective and so must be what the lottery player should expect from any program.

The final aspect of my discussion paper is that there is now a unique and novel prediction approach which has no commonality to any previously developed attempt at analyzing lottery numbers. Just from the feedback of users since its initial release GAT looks like it delivers well above the odds. I believe it may well be the best that there is for lottery numbers prediction.