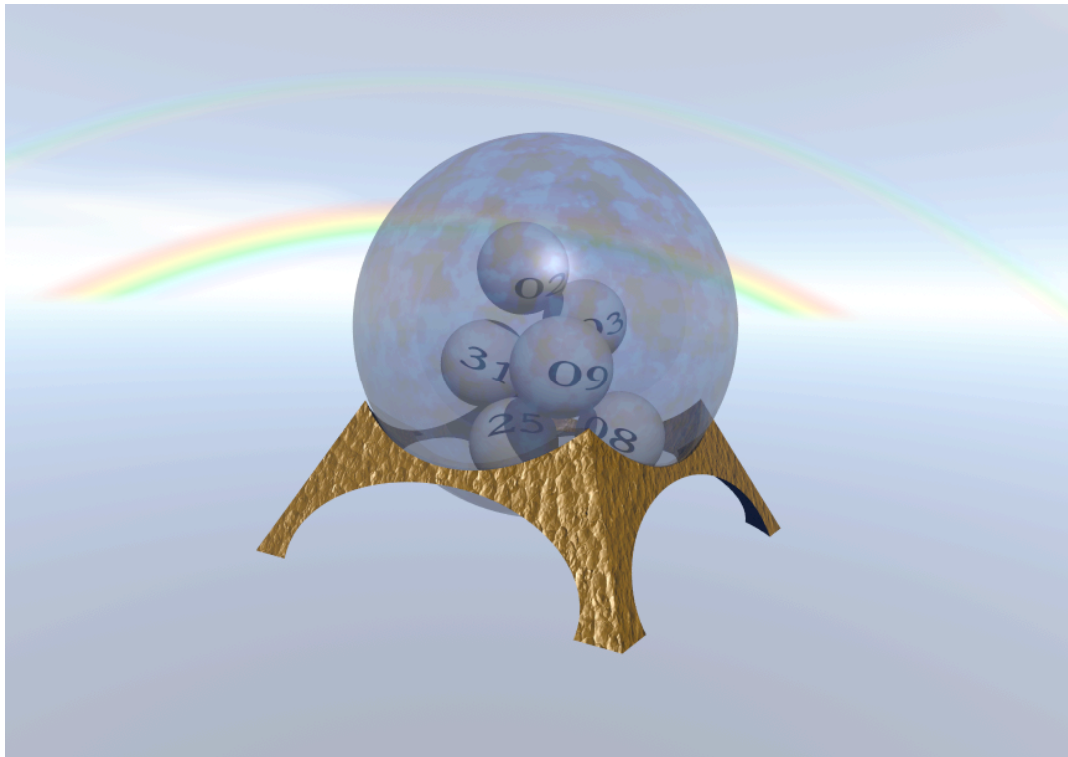# ADVANCED LOTTERY THEORY

A Brief Summary

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THIS WHITEPAPER HAS BEEN WRITTEN to dispel certain misconceptions and myths about lottery theory and prepositions which has been disseminated and circulated by various current and contemporary software programs and books. The scope of this paper is also to clarify theoretical positions and philosophies concerning random numbers and concomitant predictions.

The Great Myth of Lottery Theory

The Great Myth of Lottery Theory is, in a nutshell, is along the lines of this: "All numbers of a lottery should, on average, be picked a certain number of times. For example, if there are 48 numbers in a lottery, each number should be chosen once every 48 times (or 1:48 odds). If this number has not been picked in this timeframe, then it is overdue. Therefore, the odds of this number being picked has increased from the 1:48 odds."

A corollary to this theory concerns "hot" numbers, viz., numbers which have been picked more often than the statistical average.

This argument may seem reasonable, at first thought. But it is completely invalid. This clever argument is what is known as a logical fallacy, also known as a non-sequitur.

Almost all lottery software programs rely on, and are based on, this fallacy, which can be proved to be invalid through strong inductive, deductive and statistical analysis.

Actually, this argument *would* be valid if the lottery balls came from a single, non-replenishing pool. For example, suppose there were a barrel of 48 balls, numbered from one to 48. Each lottery drawing chooses six balls from this pool, but the chosen balls are never returned. Eight drawings of six numbers are pulled from this barrel. For the first drawing, the odds of any single number being drawn is 1:48. But because the balls are not returned, the odds of drawing a particular number increases (if that number has not already been drawn). For the second drawing, the odds increase to 1:42. Third drawing, 1:36. And so on until the final drawing pulls the remaining six numbers from the barrel, when the odds are 1:1, or 100% chance that the remaining six numbers will be picked.

But that is not how lotteries work. After each drawing, the number pool is reset, back up to the full set.[1]

The Great Truth of Lottery Theory

True random numbers cannot be predicted. The lottery balls have no memory of which should be pulled, or which is overdue to be pulled. Neither do the lottery machines. Similarly, in the casino game of roulette, you can, for example, have black numbers hit eight times in a row. The odds of the next number in the series being red is still, and always, 50% (even though the odds of having a run of nine black numbers in a row is 2^9, or 1:512).[2]

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[1] Similarly, roulette replenishes its number set after every draw.

[2] For simplicity, we are disregarding the one (European) or two (American) green (vigorish) numbers.

The Fundamental Theory Behind Lotto Sorcerer

The entire concept behind Lotto Sorcerer is that *mechanical methods of lottery drawings are not truly random.* They are *very close* to random, but not perfectly random. Even with lottery officials' attempts to make the drawings random[3], some weighted influence can alter the randomness. For example, does the weight of the ink on the balls have an effect? After all, the number "38" has over eight times the weight of ink than "1". Some balls have more ink than others, so there must be a weight variance. Are the balls of exactly the same thickness? Certainly not; plastic manufacturers generally cannot keep tolerances tighter than ±0.005" (±0.127 mm). Different thicknesses mean different weights. Although the weight differences are small, they still could (and probably do) effect whether some balls get picked more often than others.[4]

Some countries use wheels, instead of balls, to select the winning numbers. Are the wheels in perfect balance? Is the wheel spun with exactly the same torque? At the exact same starting position? The answer is, of course, "no".

For one who wants to win the lottery, the challenge is in finding these subtle non-random influences. Lotto Sorcerer turns to a proven technology called *neural networking* (also known as "parallel processing").

Neural Networking

Neural networking is a branch within the field of artificial intelligence which attempts to mimic the way the human brain is thought to work. Its primary purpose is to find hidden "patterns in chaos". It is used extensively in optical character recognition (OCR), SETI research, and national security applications such as face-recognition technology and code-breaking.

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3 Although government lotteries will invariably make an official statement along the lines of "all efforts are made to ensure the randomness of lottery drawings", their actions speak far louder than words: practically all of them have multiple machines which draw the winning numbers, and they routinely "swap out" these machines "in an effort to make the drawings more random". *This is important:* the effort to "make the drawings more random" explicitly implies that there are varying degrees of randomness (i.e., more random, less random, etc.). If a machine were to be truly random, as they would have you believe, then they those machines would never need to be swapped with another machine; hence, their lotteries are not truly random.

4 The theory that differing weights of balls could effect the outcome of the lottery was, ironically, **proved** by criminals in a successful attempt to alter the results of the Pennsylvania lottery in 1980: "The cheaters included key employees at a Pittsburgh TV station where drawings for Pennsylvania's Pick 3 game were held. A station art director, according to news reports from the time, injected a few grams of white latex paint into balls to be sucked into an air-powered machine. The cheaters weighed down all balls except those numbered with 4's and 6's, then bought combinations of those numbers. When 6-6-6 hit, they won $1.8 million." - *The News & Observer*, May 28, 2006.

A popular Academy-award winning movie, "A Beautiful Mind" (which was based on the book of the same name), exemplifies this concept: the Nobel Laureate and mathematician John Nash had the uncanny ability to see patterns in encrypted messages that were, for all practical purposes, "invisible" to the ordinary person.

His abilities were, indeed, an anomaly. Very few people have this skill. Computers, on the other hand, are uniquely adapted to this type of task, given their extraordinary speed of computation and extrapolation. Neural networking leverages this superior speed of the computer to detect similar hidden patterns which may not be apparent to the casual, or even experienced, user.

Lotto Sorcerer uses this same technology to try to find hidden or weighted influences in the history of prior lottery drawings.