Neural Networks in Financial Astrology

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AIR Software (USA) has created a new program, Market Trader Expert, to analyze the all stock markets. This program uniquely combines methods of technical analysis with astrological insights. This software program is a first because of the newest, latest, cutting edge mathematical techniques. In a nutshell, the main idea of the program is to analyze a market within a user specified time interval and predict its movements. In order to accomplish this we create market models with the program, optimize them within a previously defined time interval and then make a prediction into the future.

My software partner, Alphee Lavoie, and I have done extensive research in the stock markets. As a result of this work, we combined different analytical techniques. We then took these results and modified them by a special type of neural network. This neural network is our "know-how", allowing us to achieve very good results, even when the analyzed market does not have a long history. It is here that the blend of astrology and traditional sciences shines. While those who believe that astrology has an effect on the market now have one more 'proof' of their belief, traditional traders also have some alternative to technical analysis methods.

We need to say that the method that Alphee and I have proposed is by far not an ultimate one. The predicted time interval has its limits because of dynamic changes of the market's structure and the nature of such changes are unknown to us. But our method, together with other traditional techniques, gives good results.

The interface of the Market Trader Expert is designed similarly to other technical analysis programs (you can see for yourselves right after downloading the program). From the Main Window of the program you will see that we have made various techniques available, such as being able to draw the Fibonacci grid, support lines and so on. Astro-traders will also find many interesting astrological techniques in the program.

Market Trader Expert actually contains two program versions in one! It offers a full, complete program with all of the technical analysis and astrological criteria at your fingertips and a second program within it consisting only of the four most accurate and effective predictive techniques. This shorter program is astrology free. The Expert program has a manual of about 500 pages and looks like an encyclopedia on Financial Astrology. Even those without any astrological knowledge can use this program.

In this article we will show how any trader or market specialist can analyze the situation of the markets. Let's divide the whole process into stages.

Stage 1 - Composite Analysis

This is a very approximate, but effective technique. "Composite" refers to the curve which shows how the planetary' positions, aspects and other astrological phenomena effect the stocks.
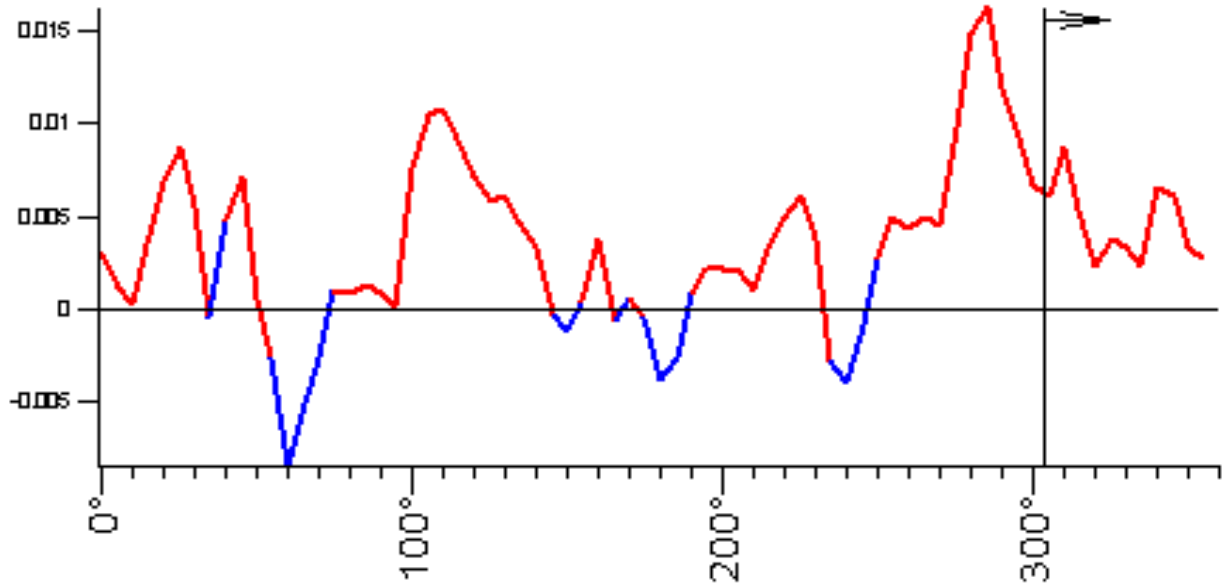
Figure 1 shows the Sun composite:

Fig1. The Sun's composite

From this graph you can see the geocentric coordinates of the Sun on the horizontal axis and its effect on the chosen market (or Dow-Jones index, DJIA) is shown on vertical axis. The Sun is the annual change of this index. Note that in this case the year begins March 21 (sometimes - March 20), when the Sun makes its ingress into Aries. Zero line shows the usual (normal) level of the index and all its changes are calculated according to this level. If the market or index (as in our example) goes up, the changes are positive and are shown above the zero line on the graph. If the market goes down, the changes are negative and are shown below zero line.

This curve is quite normal. But other curves could be more interesting. Let us find a composite of the angle between Jupiter and Uranus (Fig.2):
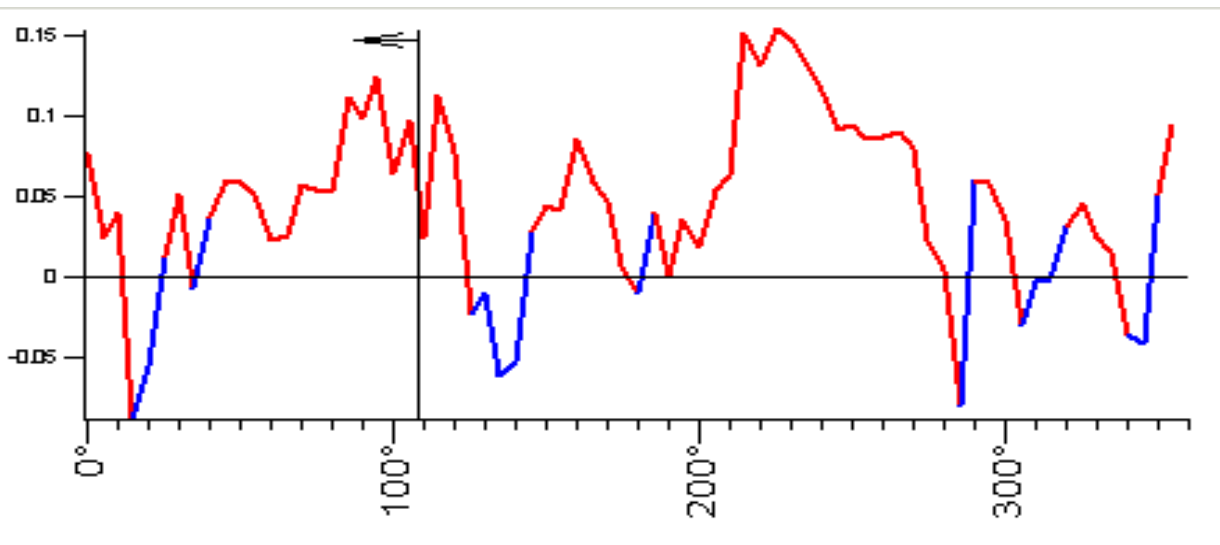

Fig.2. The composite of the angle between Jupiter and Uranus (during 1935 - 1999 years).

In this case the angle between these two planets is placed on the horizontal axis.

In both cases the angles have been measured in degrees. We can make a composite curve according to time as well. It allows us to see the effect of any astronomical (or astrological) event on the market within that time interval.

The technique of composites is rather popular in financial astrology. But we can go further and try to find some numbers, or coefficients (indexes) that will estimate the effect of any composite model on the chosen market. If these coefficients are the correct ones, then the sum of all composites corresponds to price changes within some time interval. Let us call this time interval "the optimizing interval". Knowing these coefficients, we can suppose that the summary composite curve will correspond to price changes at the other time interval. We need only to check this correspondence on the testing interval. If the correspondence is rather good, it means that we have found the proper coefficients for our composite model. If two curves correspond poorly, or not at all, then we have not found the proper coefficients and must continue our search.

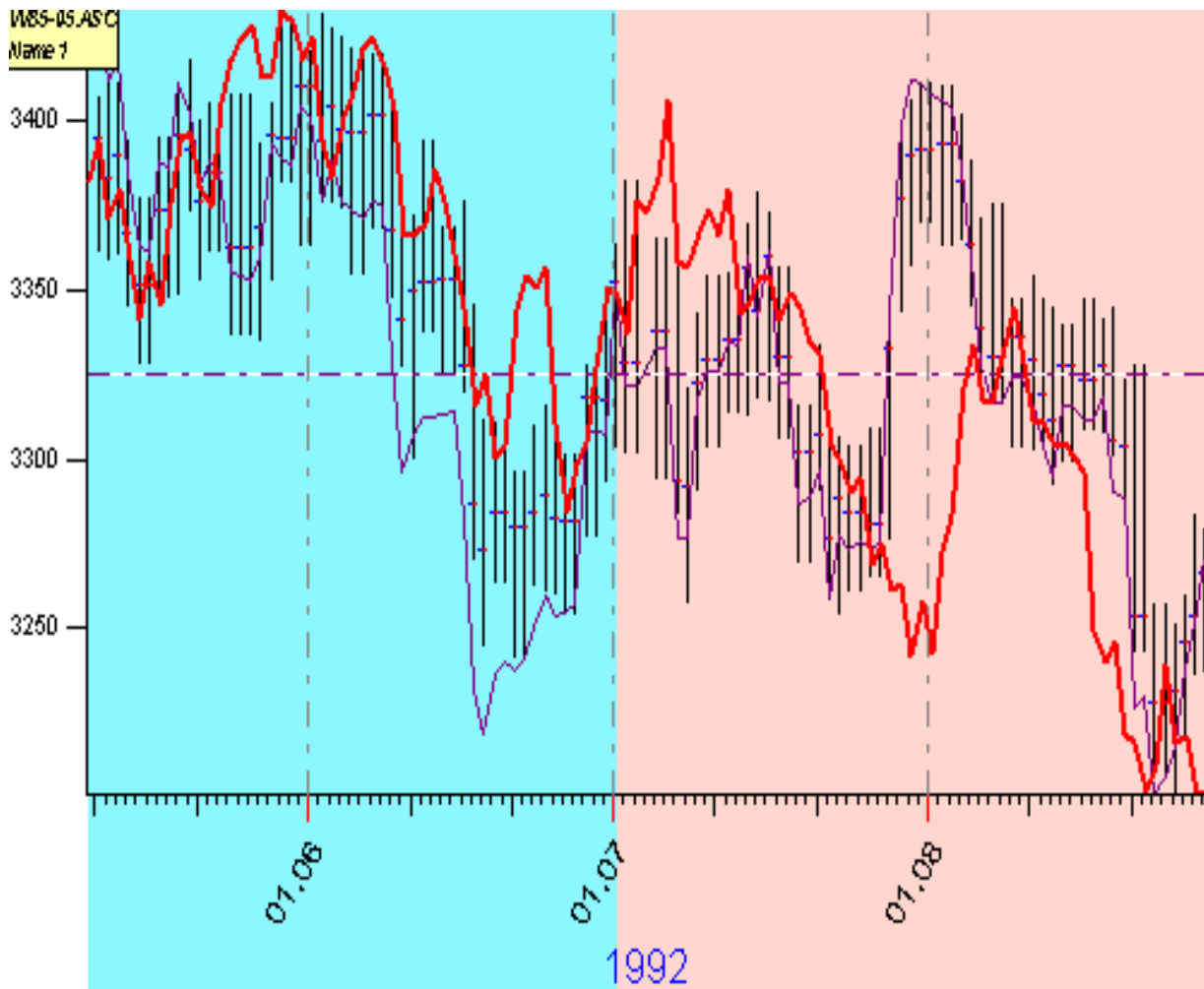Fig. 3 show two curves, the optimizing and testing intervals:

Fig3. The summary composite

The red line on this graph shows the composite summary. The vertical black stripes and violet curve represent the chosen stock market (or DJIA, as in our example). The space of the graph is divided into two portions: a green/blue portion relating to the optimizing interval (here we try to find coefficients), and a pink portion marking the testing interval (where we check our findings). Note that the horizontal axis represents the present time (not angles). In this graph we have analyzed the effect of composite models on the changes of the DJIA during 5 years. This is a great aid in helping us to make a prediction for August and September, 1992. Fig.3 represents a part of the big picture as it works with 5 months out of the year.

Stage 2 - Easy Expert

This technique was invented just one year ago and is another one of our "know-how" techniques! Soon after its appearance, Easy Expert became one of the most popular and favorite techniques of its users and members of the "Market Trader" Email group. The program takes different astrological events and analyzes their effect on the market. When important events are found, it is easy to find the time when they will occur again in the future and that is a sure way of making money! This program (and some other programs by AIR Software) can calculate any possible astrological event and the moments of its culmination. Events can be quite common (as ingresses, aspects culminations, midpoints etc.) and rather exotic (such as Moon conjunction to the point which has

coordinates Sun+Mercury-Venus). An event is important if it has a special effect on the market when it occurs. For example, let us look at the Dow-Jones during 1985-1992 years. Using the program we found that one of the important events during this period was the aspect of transiting Mars to transiting Jupiter. It took place 8 times within the interval, and every time it occurred the Dow - Jones went up three days before the culmination of the aspect. If we compare Dow -Jones a day before the culmination and up to two days after the culmination, we'll see that this index goes down 6 times and only goes up only twice. If this correspondence was in a particular stock market (let's say, company X), it would mean that this aspect effects the price of this company's shares. Then we would mark the next date of this aspect's culmination, buy these shares 4 days before the date and sell them a day before the date of culmination.
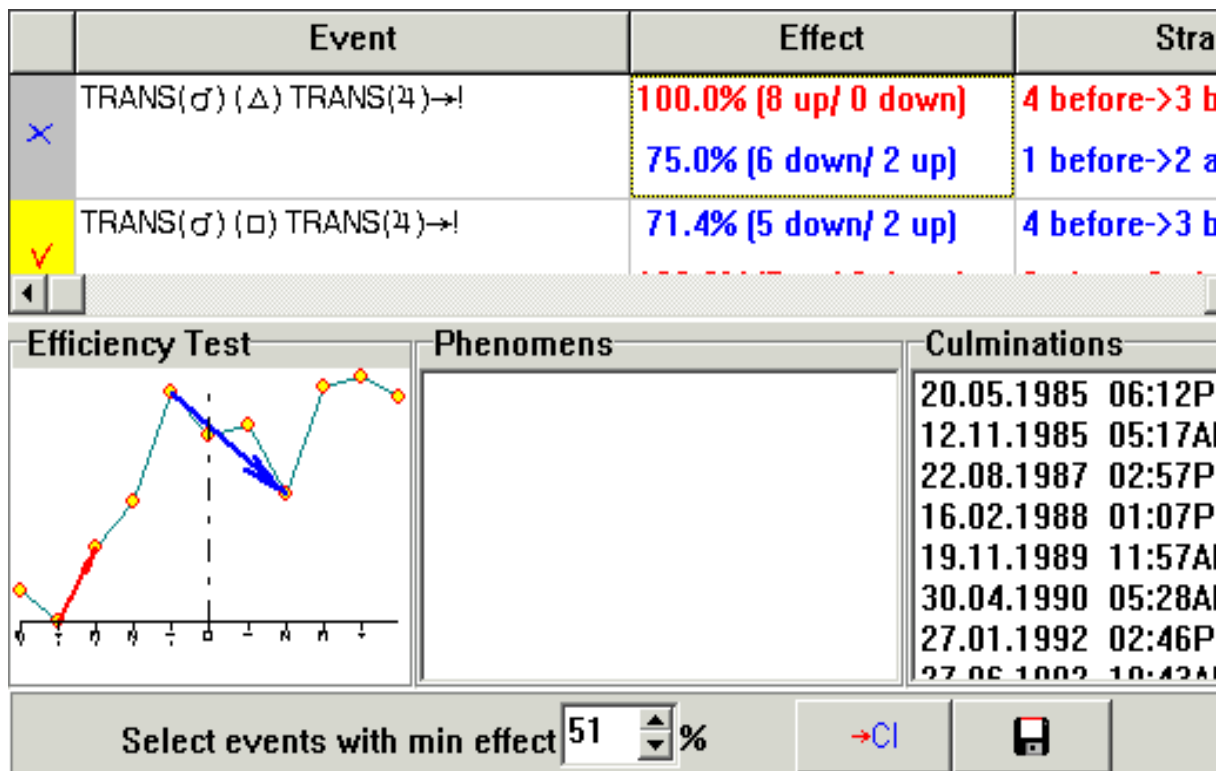
You can see how it works (Fig.4):

Fig4. Easy Expert Window Results

Fig.4, shows the Efficiency Test. The screen is rather small. The main part of the window lists the astrological events. The program calculates any astrological event, but you can select only what you want for the analysis. These events are recorded in this window as well as their effect on the market. After the analysis, the program will give you advice - it tells you when it is better to buy/sell your part of the shares according to the "ups" and "downs" of the event. The information used for the advice comes from the Efficiency Test graph. The essence of the event is shown by a vertical line while the horizontal axis indicates days before and after the event. The vertical axis shows average prices or average meaning of the analyzed market (index, etc.) during each day.

Those who are practicing financial astrology will appreciate this technique. But what if a trader is a novice in astrology and has no time or interest to study or learn astrology? For those traders who want to get into the trading right away we have designed a very special window which shows the results of Efficiency Test in a different way (Fig.5):
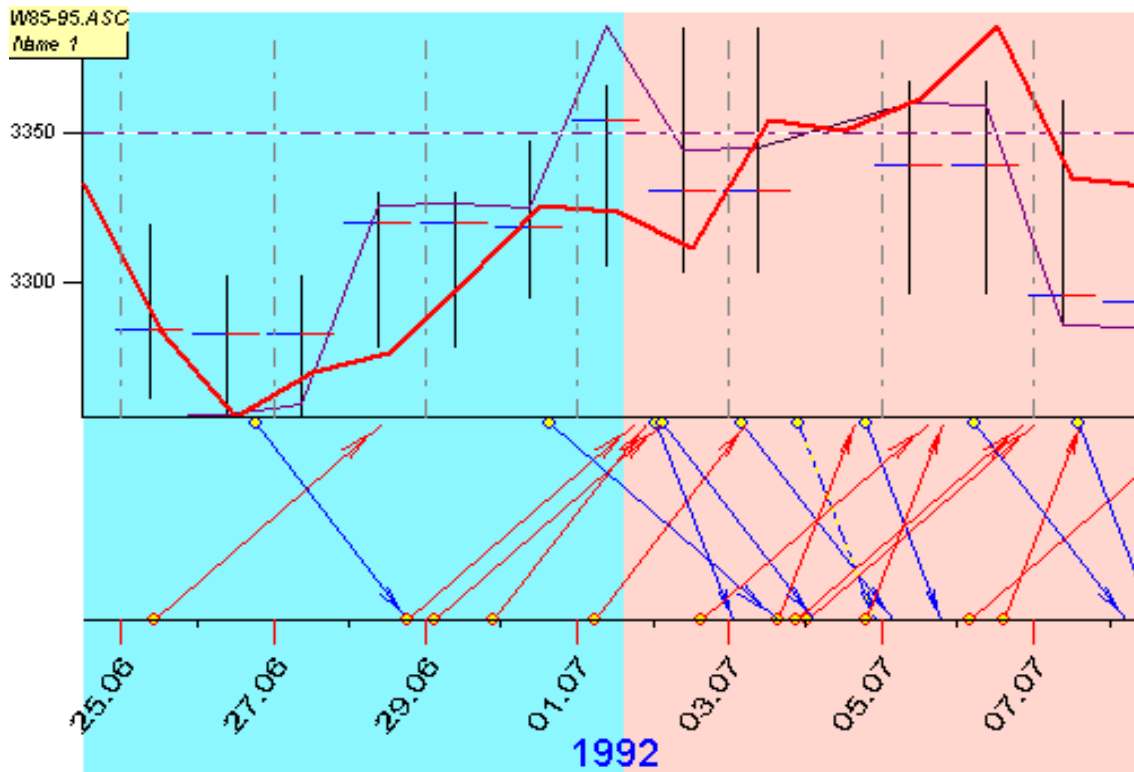

Fig.5. Easy Expert's results

This window is divided into two sections. The blue/ green portion presents the optimizing interval, on which the program analyzes the events and their effect on the market and the pink portion presents the testing interval (there the program makes a prognosis). Arrows in the lower part of the window show the market's movements. Red arrows indicate a 'fanning of the fire' and show that the market goes up and the blue arrows indicate a 'cooling off' of the market and that it goes down.

Very important notice: Some events that cause an "upward" movement for one company's shares could be the reason for the "downward" movement of another company, i.e., the program finds specific information for every single case which will vary accordingly.
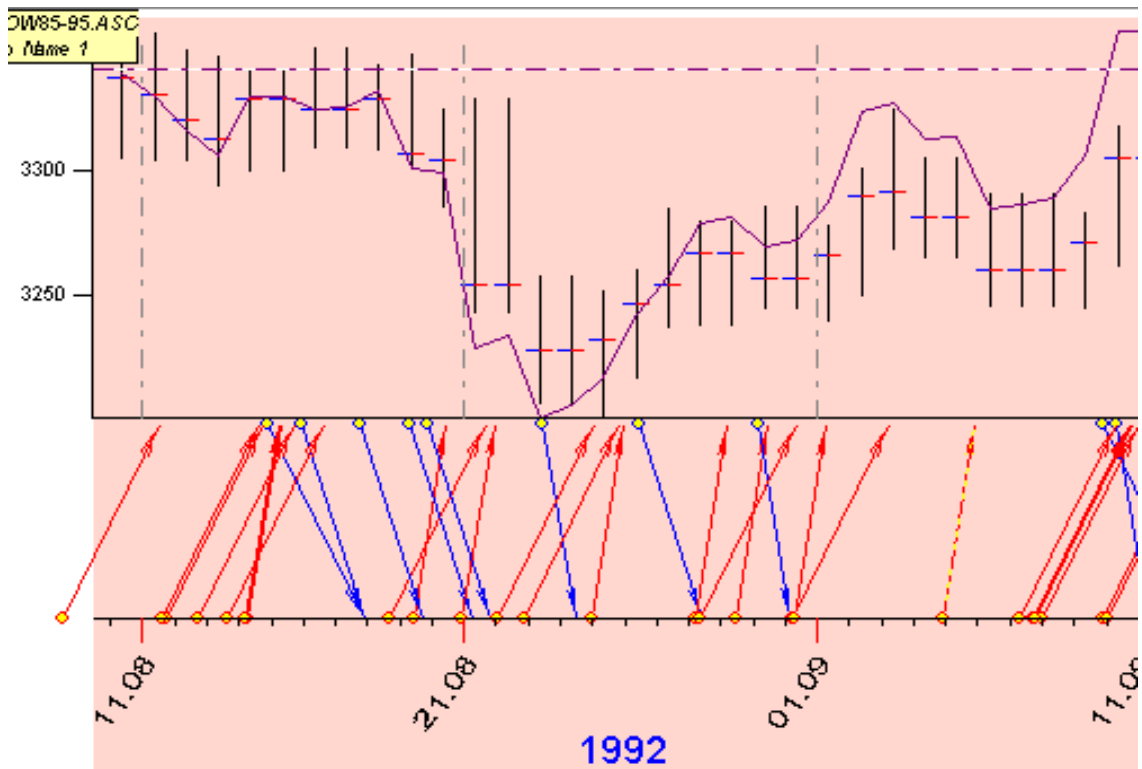
Fig.6. Easy Expert's results; one more variation

Stage 3 - Neural Network

Neural network is a completely new method for us. Alphee and I began to work on it more than 4 years ago, but it was only recently that we found the necessary proof that this method works. It is a very interesting mathematical technique designed to solve different types of non-linear problems. In trying to apply this method to astrology, we found many peculiarities. This part of the program has been changed almost every 6 months during last 4 years which reflects the many stages of our own growth in comprehension of the problem.

Almost every researcher of the financial markets pointed out the psychological components of the situation on and around stock exchanges. If the psychology works there, then there must be a place for astrology, too. An factor that seemed to be a consensus among the majority of the researchers, was the effects of some astronomical events, such as Moon's phases and solar activity. These phenomena are not astronomical events. Astrology can tell about these particular events (as well as about the others) much more than astronomy. For every astrologer, it is common knowledge that everything on Earth (and the markets, as well) is affected by happenings in the sky. But celestial influences are not easy to measure and estimate. Perhaps that is because modern science is not so perfect and does not know everything. It is difficult to describe the effect of one single astrological event on other objects. When this event is combined with 2-3 other astrological events its effect could be completely changed (it could be increased abnormally or decreased almost to nothing). To the scientific mind, this fact says that the nature of such effects is non-linear. (Linear - means that every time, everywhere, something works the same way, and if there are two different factors, their summary effect is simply a sum. For non-linear systems, it does not work: a summary effect of two events is rather multiplication, than a sum; conditions of the events are very important as well.) It means that when we speak about the effect of a particular planet on a particular market, we must take into account the effect from the planet itself, effect from the aspects of this planet, effect from the other planets aspecting the first planet, the type of planetary movement (direct or retrograde),

type of each aspect forming by the planet, etc. As you can see it is a very complex and difficult problem to solve.

The neural network looks like an ideal mathematical method for modeling the non-linear systems. Together with fuzzy logic and chaos theory, neural networks are the last word of the modern mathematics.

We tried to apply them to solve some our astrological problems.

The neural network is a mathematical structure originally created to model the processes inside the human brain. In brief, the idea is to take some information as input for the neural network and find some logical connections between pieces of this information, allowing to receive some conclusions as outputs. There are a lot of books describing neural networks, their structure, ideas behind it, and their applications in modern science and technology. In our Market Trader program, we have created a specialized neural network which is designed to work with astrological events.

The inputs of the neural network is comprised of different astrological phenomena (events). It could contain as many events as we need, and any astrological event could be taken as the input. In the output, we want to find the information about price changes of the shares of some particular company (or the information about changes of some particular index, such as DJIA) according to these astrological events. We study the connections between the input and output in the optimizing interval and test our results on the testing interval. If we can find the right connections on the optimizing interval and then test them on the testing interval where they work well, we can use them for prediction.

We have made some very important observations. First of all, there are so many astrological events involving the same astrological objects (i.e., planets). If we take into consideration more than two planets, the number of events for input increases abnormally (look at the chain: 1 planet - its aspects to the other planets - middle points involving this planet - aspects of the middle points involving this planet - aspects of the planet to middle points; and this is not all of them!). Some of these events, taken as input of our neural network, could be completed during years (sometimes centuries!). But analyzed markets usually have a rather short history. In this case, the neural network has a shortage of the market's history and cannot learn properly.

The second interesting fact that we have found is that sometimes the neural net which worked well during some period stops working at all. We think that the reason is that some astrological events (one or more) change their effect on the market. We don't know why it happens. The systematic research of astrological influences is only in its infancy. Astrology has a lot of information about these influences, but it is only a description of some observation.

In our opinion, these two reasons could explain why astrologers don't have now good statistical results to prove that astrology works. This is a huge problem in astrology and needs a lot of research.

We have some more small observations concerning the neural net. As a result, we created a special part of the program called "Neural Net Master". This Master analyzes any particular market and finds the best variant of the neural net for it. Users of the program will see only results, as seen in Fig.7:
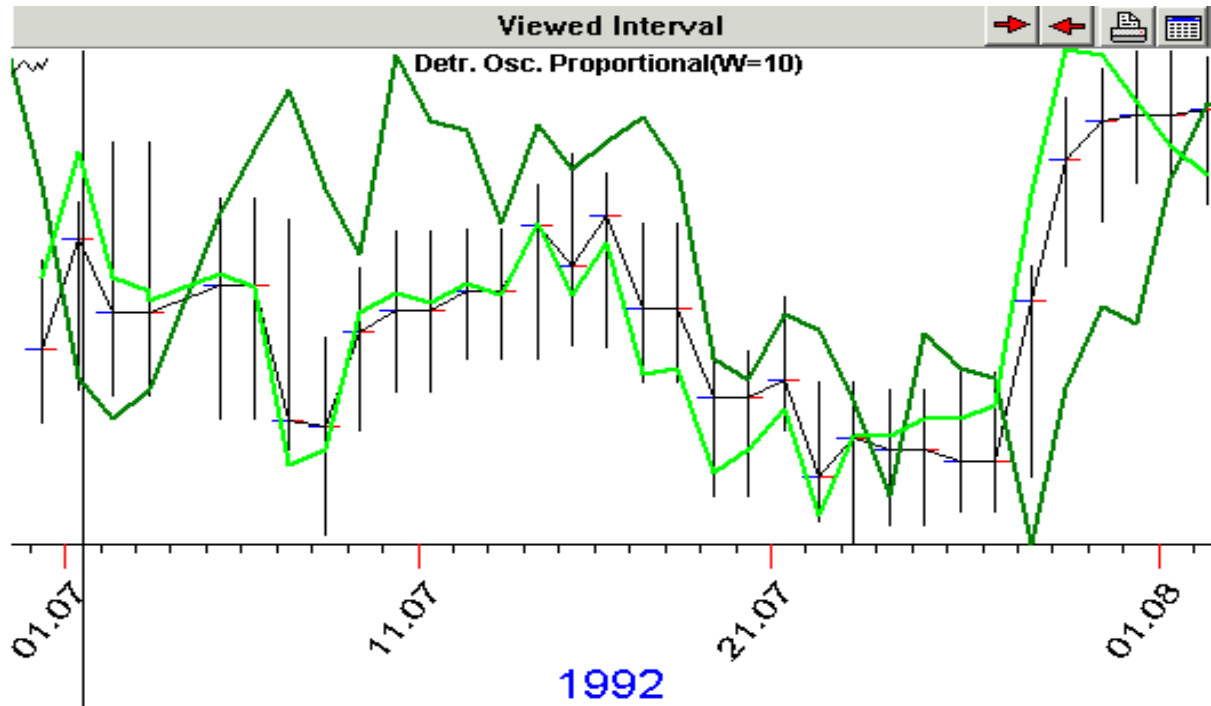

Fig.7. The neural network's prediction

In this graph the light green line represents the price changes; the dark green shows the prediction made by the neural net. The vertical line is the border of the optimizing interval (there the neural net learns, i.e. finds the correlations between inputs which are astrological events and the changes of the price).
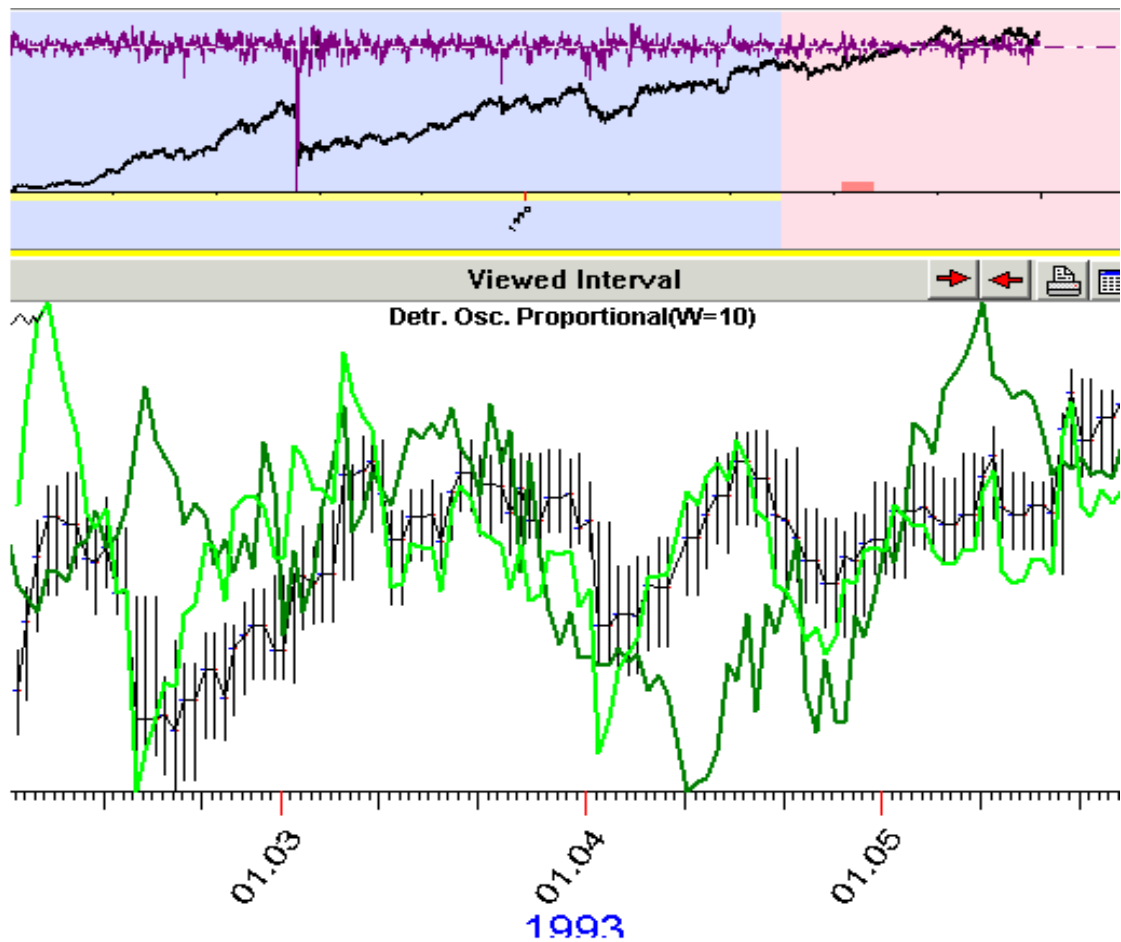
Fig.8. The neural net's prediction

Fig.8 shows some other prediction made by the neural net. The time interval is far from the optimizing one. As you can see, the prediction becomes less satisfactory, i.e., the prediction becomes worse. It means that some new factors began to affect the market. What should we do? We could begin the process again by taking this time interval as the optimizing one, check our inputs, and the neural net will learn new connections and will make a new prediction.

If we found the neural net working positively within the testing interval, we could use it for prediction.

To be sure that we are not making a big mistake (or to prevent the predictions from irregularities), we combine the neural net with some non-astrological techniques. It means that some inputs could be non-astrological (i.e. results of spectral analysis, auto regression models, analysis of price structure using so-called "Japanese candles", Elliott's waves, etc.). In this case, the neural net will work as the system based on Fuzzy Logic rules. The results are very interesting.
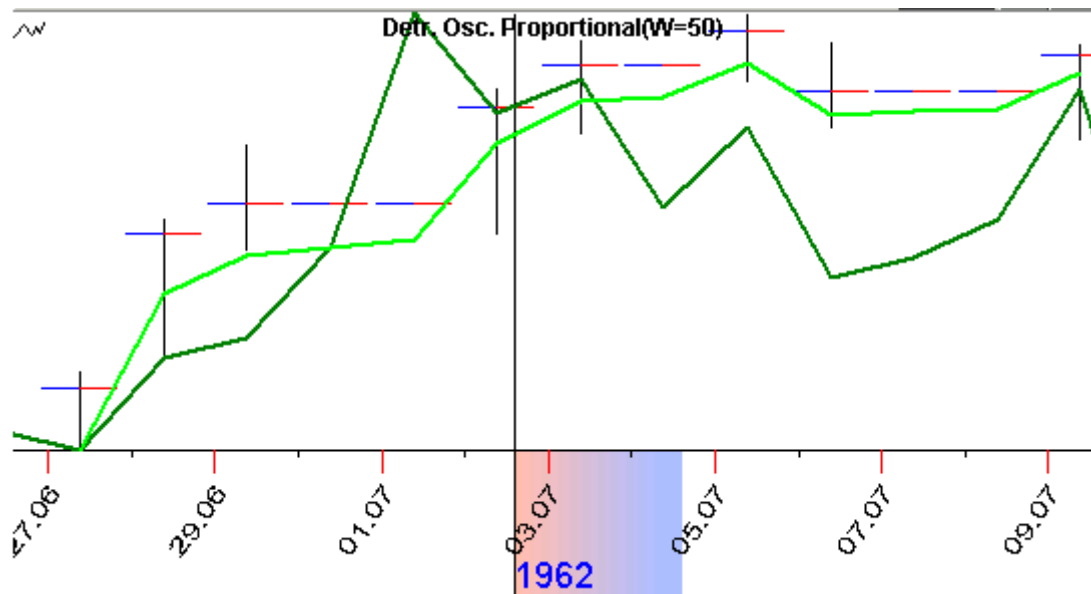
Fig.9. The neural net prediction with non-astrological techniques

Fig. 9 shows the prediction of market movement by the neural net that has 1600 inputs. This neural net uses non-astrological techniques only (here we use auto regression, bar structure and analysis of turning points). The colored zone at the time axis shows the predictive period. As you see it is not very big.

Some notes for neural networks professionals (other readers can eliminate this part): The basic neural net in the program has the following parameters: for the 7-year market (i.e. 2000 examples for learning), it has 600-700 inputs. According to the theory of neural networks, the neural net with 600 inputs could be educated at the market with price history of more than 20 (sometimes 30) years. Otherwise the neural net will be 'over-educated' (it means that the neural net works perfectly within the optimizing interval and does not work at all within the testing interval). We created a specialized neural net, and 7 years of history is enough. In this case, the total process of learning takes only 3-4 minutes). The program allows for setting the amount of hidden neurons; in our opinion, less than 100 is enough.

What we cannot Yet do!

We must say that, despite all of our achievements and good results in this direction, there are more questions than answers to this problem. Sometimes the neural net stops working (or its rather satisfactory prediction becomes wrong, at some point). We still don't know why that happens. The only thing we can do is try again.

It looks like the market on the whole changes its structure from time to time, and techniques which had previously given good results just stop working.. After some time the picture changes again, and those previous techniques work again, too. We don't know the conditions of such periods and cannot predict them *at this time*.

But we are sure that every neural net model reflects only one market - that one for which it has been created. We designed some new instruments to analyze financial markets. All questions we have posed are the reasons for more research.

Only those who try can achieve something!