

ZUP - a zigzag universal with patterns Pesavento. A part 1

Introduction

Everyone who seriously concerns to work in the financial markets, sooner or later create the individual trading systems. Result of search of the trading system the author of given clause had indicator ZUP - a zigzag universal with [patterns Pesavento <http://www.ensignsoftware.com/tips/tradingtips35.htm>](http://www.ensignsoftware.com/tips/tradingtips35.htm). From company MetaQuotes Software the offer has acted to write clause about this indicator. I shall try to make it. In clauses the description of opportunities of indicator ZUP of version 60 (ZUP_v60) will be resulted. So it has turned out, that Broker through which the author gets access to the financial markets, use trading terminal MetaTrader 4. The standard indicators included in delivery of the terminal, did not give an opportunity for the analysis of the market in the necessary cut with necessary efficiency. The author prefers to equip that place where lives, instead of to seek happiness elsewhere. Hence, it was necessary to make so that by means of client terminal MetaTrader 4 it was possible to spend the necessary analysis of the market. The blessing, in the terminal there are opportunities by means of built in programming language MQL 4 to create the indicators.

For last year from the beginning of development of the indicator there were many interesting ideas. Many of these ideas are realized. Inflow of ideas was promoted by that the indicator was with the open code and was in an easy approach. This basic decision - to do the noncommercial indicator. As shows an expert, development of the noncommercial indicator - the optimum decision.

Theoretical part.

After [short research <http://onix-trade.net/forum/index.php?showtopic=88>](http://onix-trade.net/forum/index.php?showtopic=88) there was an idea of association in one universal indicator of zigzags with various algorithms and automatic construction of patterns Pesavento and Fibon<-levels from crises ZigZag. Also it became clear, that it is possible to automate construction of various graphic tools, and not just patterns Pesavento and Fibon<-levels. [Search of ideas <http://onix-trade.net/forum/index.php?showtopic=118>](http://onix-trade.net/forum/index.php?showtopic=118) by way of that it is possible to realize in the universal indicator has been organized. There was a task in view to open all potential opportunities which are incorporated in tool ZigZag. As a result it was possible to realize automatic construction of a plenty of known graphic tools. Also new graphic tools which idea has been offered by various people at forum [ONIX <http://onix-trade.net/forum/index.php?act=idx>](http://onix-trade.net/forum/index.php?act=idx) have been realized some. Logic of work of the indicator simple:

1. We Submit on an input of the indicator of the quotation of the chosen financial tool;
2. By means of various ZigZag it is found on the chart high an low of the market;
3. To the found high an low it is adhered various graphic tools.

The further work with the received graphic constructions assumes knowledge of logic of work with the chosen graphic tool. In given article description ZigZag, built in in ZUP will be resulted. Also there will be mentions of some graphic tools which have been built in in ZUP. Their detailed description will be in the second article, devoted to use of the built in graphic tools. I shall try to give the reference to primary sources in which the description of work with the graphic tools which have been built in the indicator is resulted. I believe, that it is necessary to study first of all primary sources for correct understanding of the ideas incorporated in graphic tools.

Recently has read through the book [1]. A subtitle of this book - " Secrets of gold section ". In the book it is told about displays of gold section in all natural phenomena. After that has read through work [2]. These two literary sources have helped to understand, where, the indicator develops in what party. Earlier development went a little chaotically. I shall result some citations from work Ю.Н. Соколов:

*« Whether there is in general a basis of a universe and if exists, what is it? We have clearly enough answered this question in the general theory of a cycle which we develop since 1981. Yes, the basis of a universe exists also it is universal structure of interaction. Any interaction, and the world, in essence, it not that other as interaction of material objects, is constructed under the universal scheme, an original pattern. This pattern is arranged cyclically, that is time in it moves on a circle, and changes of any parameter are described by a wavy curve. The given pattern we have named quantum of interaction ... **Studying of the device of quantum of interaction has led us to a conclusion, that all world around is described by the unique law - the law of cyclic structure of space-time of quantum of interaction ...** » [2, P. 7].*

Two forces participate in interaction.

*« The gold section - a constant of quantum of interaction Arises a question on a limit of increase in one force and reduction of the second. Such limit should exist and it follows from following reasonings. We shall present, that such limit is not present. Then it is possible to increase one force and to reduce the second force up to zero. We come to that there is only one force, and it is equivalent to disappearance of interaction. Such, naturally, cannot be. Hence, the limit of increase in one force and reduction of the second exists. The question on a limit of change of forces, in our opinion, can be solved on the basis of **gold section**. Last years in the Russian science revival in research of a role of gold section in different areas of a science and technics is observed. To scientists convincingly shows, that the gold section acts as a universal world constant. However the nature of gold section remains unknown. We think, that the nature of gold section can be opened only within the limits of the general theory of a cycle (OTU) ... » [2, P. 29].*

How to apply substantive provisions OTU in scientific researches. Oscillatory character of interaction is caused by "game" or interaction of two opposite directed and interpreted (not clear!) forces, tendencies. This "game" also defines structure of a cycle. Hence, to apply the general theory of a cycle, it is necessary to begin with the most important - from revealing two opposite forces. At research of different systems of the name of these forces will be every time different. If interaction in the inorganic nature these forces will act as force of action and counteraction ... Precise revealing of these forces in each research the most important and solving for the further analysis undertakes. After two opposite tendencies are revealed, it is necessary to establish two opposite and interpreted (not clear!) poles of a cycle. One pole composes of the maximal value of positive force and the minimal value of negative force. The second pole is contrast of the first and composes of the minimal value of positive force and the maximal value of negative force. As it has been shown in our statement, between these poles and oscillatory process is carried out.

The following stage of work consists in a finding of parameter which defines inert weight and speed of process of change of two opposite forces. Speed of process is traced in current of interesting time and by the described technique is constructed cyclogram. On cyclogram the length of a wave, amplitude and size of oscillatory "corridor" is defined. Interference of the next cycles on the given cycle ... » [2, P. 46] is if necessary investigated

I shall not display here an illustration and the formula from work [3]. They are interesting enough. Any interested person can independently familiarize with the given work.

In the financial markets to reveal two opposite forces simply are "bulls" and "bears". To revealing poles of cycles (extrema) in the financial markets in indicator ZUP it is applied ZigZag. It is a lot of algorithms of construction of indicator ZigZag. In ZUP indicators ZigZag with various algorithms are built in. The finding of an exact arrangement of extrema both on time is very important, and at the price of, that is extrema should be located precisely on a maximum or a minimum of a corresponding price bar. It is necessary for the further correct forecasting development of a cycle. For research of processes of interaction between poles of a cycle various graphic tools are used. As the gold section proves in all natural phenomena, in ZUP the emphasis on various Fibon<-tools also is done. Graphic tools become attached to points of extrema of the market found by means of ZigZag.

The graphic tools which have been built in in ZUP, happen static and dynamic. Static graphic tools become attached to the generated crises of a zigzag, that is to those crises which will not change any more. Dynamic graphic tools have the point of a binding located on the end changing the position of the first beam of a zigzag. Dynamic graphic tools enable operatively to make a decision. If the market will be developed, on a tracing of the dynamic graphic tool we at once can see a direction of prospective further movement of the market. At change of the first beam of indicator ZigZag the dynamic graphic tool is automatically reconstructed also.

The description of indicators ZigZag which have been built in in ZUP

In ZUP there are many various parameters. The main parameter - ExtIndicator. The given parameter chooses ZigZag by means of which there will be extrema of the market. Number ExtIndicator was set under the order in process of building in new ZigZag or a new mode in ZUP. At once I wish to tell, that what was ZigZag, it is not recalculated on each tic. Recalculation happens:

1. At an exit of the price for limits of a zero bar (the market rises above High a zero bar, below Low a zero bar or there is a new zero bar);
2. At pumping earlier history;
3. After inclusion of the terminal at pumping the history which have appeared in time while the terminal has been switched off.

Style of a conclusion of all indicators ZigZag is set by parameter ExtStyleZZ:

1. ExtStyleZZ = true - sets style of lines ZigZag through menu COLORS (menu Графики-> the List индикаторв-> ZUP_v60-> properties-> Colors);
2. ExtStyleZZ = false - ZigZag it is deduced by points at minima and maxima.

The first ZigZag

ExtIndicator = 0 includes standard ZigZag which was delivered with client terminal MetaTrader 4 till summer of 2006. This ZigZag is a little modified. Ideas for updating have been taken from [Nikolay Kositsina's](http://www.mql4.com/ru/users/GODZILLA) clause <http://www.mql4.com/ru/users/GODZILLA> " Repeated recalculation of a zero bar in some indicators <http://articles.mql4.com/ru/139> ". Also own operating time have been used. Parameters for adjustment of it ZigZag:

1. minBars corresponds ExtDepth in ZigZag from delivery MetaTrader 4;
2. ExtDeviation corresponds ExtDeviation;
3. ExtBackstep corresponds ExtBackstep.

The second ZigZag

ExtIndicator = 1 includes ZigZag Alex ([Automatic Channel http://forex.kbpauk.ru/showflat.php/Cat/0/Number/100566/an/0/page/0](http://forex.kbpauk.ru/showflat.php/Cat/0/Number/100566/an/0/page/0)).

Algorithm

Average value of the first bar is calculated. Further on all subsequent bars the conditional average price of a bar is calculated. The direction of a trend on a following bar on displacement of the

conditional average price of a bar is defined. Change of a direction of a trend happens at a deviation of the conditional average price for the set size in points minSize or in percentage minPercent.

Parameters

1. minSize - the filter by quantity of points, sets quantity of points;
 2. minPercent - the percentage filter, sets percent, for example, 0.5.
- If percent are used, put the necessary number, and minSize = 0.

The third ZigZag

ExtIndicator = 2 resolves work with ZigZag Ensign. ZigZag Ensign - the conditional name. This variant ZigZag has been made after supervision over work of the indicator on the basis of which in [Ensign](#) patterns Pesavento are under construction. On site [Ensign Software <http://www.ensignsoftware.com/>](http://www.ensignsoftware.com/) there was a small description of principles of construction of this indicator. Probably, in Ensign the algorithm of the indicator differs from realized in ZUP a little.

Algorithm.

The minimum and maximum of the first bar are compared to minima and maxima of following bars. If there is a bar on which simultaneously the minimum and a maximum is more (less) than that on the first bar the direction of a trend is defined. The minimum and a maximum is more than minimum and a maximum of the first bar - the bull trend. The minimum and a maximum is less than minimum and a maximum of the first bar - the bear trend. Further there is a description of algorithm for bull - ascending - a trend. For the bear trend all will be on the contrary. Have defined, that a trend ascending. We remember value of a maximum of a bar in a variable hlast. If on a following bar the maximum will be above a maximum of the previous bar, on a following bar the bull trend proceeds. We remember new value of a maximum of a bar hlast. At equality of maxima we consider, that the direction of a trend has not changed. The trend remains bull. If on a following bar a maximum of a bar below the previous maximum (hlast), there are variants:

1. Are passed minBars bars. Thus on each of these minBars bars the maximum should be less maximum (hlast) last bar after which readout minBars bars has gone. If even on one bar the price will exceed a maximum (hlast) last bar the trend will be considered bull up to this bar inclusive. And further from a following bar reckons minBars bars. Then bars, since minBars + 1 bar are analyzed. If hlast - Low [minBars + 1] > minSize, the trend changes direction on bear. That is, if the minimum minBars + 1 bar or any following bar deviates from hlast on size, greater minSize, the trend changes direction, becomes bear. In this case minBars + 1 bar is considered from last maximum (hlast) aside a zero bar;
2. If any of minBars bars will be closed below last minimum, the trend also will change a direction on bear, not waiting minBars + 1 bar. Change of a direction of a trend and a portrayal of a new beam of indicator ZigZag happen after closing a bar on which the trend was developed.

Parameters

minBars, minSize - names are taken same, as in program Ensign.

At ZigZag Alex and ZigZag Ensign there are no lacks of standard indicator ZigZag: the processor is not overloaded, there is a calculation only last bar, there are no several maxima successively, last minima and maxima are predicted. Besides last maximum can increase only, the minimum - only to decrease. These are trend indicators. On the other hand, for ZigZag Alex and ZigZag Ensign on different timeframes it is necessary to select parameters. Selection of parameters is necessary for revealing correct structure of waves on different timeframes. And for ZigZag ExtIndicator = 0 it is possible to apply the same parameters on different timeframes.

The fourth ZigZag

ExtIndicator = 3 - resolves work with ZigZag Ensign with little bit changed algorithm. For this variant it is necessary to set only value minBars. Value minSize, set in a window of parameters of the indicator, will be ignored. Value minSize variable and is equal to the size of a bar (from a minimum up to a maximum) on which last beam of indicator ZigZag comes to an end. At copying last beam of indicator ZigZag new value minSize is calculated.

The fifth ZigZag

ExtIndicator = 4 includes ZigZag tauber'a. Tauber - the participant of forum ONIX. I shall bring the description kindly given by the author:

" For a basis has taken metatrader. (ZigZag from delivery MetaTrader 4 - the Comment nen) Algorithm recursive, short and logically clear:

1. The global maximum among all bars is searched;
2. The Remained bars share on two parts on the right and to the left of the maximal bar;
3. In both halves the global minimum is searched;
4. Remaining halves again halves and so on.

Thus process copes, as it and is necessary in ZigZag, only in one parameter - percent or a difference in points. "

And two more citations:

" Algorithm recursive - function of a finding of a maximum itself causes function of a finding of minima and on the contrary, consistently splitting up the chart on more and more fine fractals.

Process stops, when the difference of the prices between the next maximum (minimum) and the next minimum (maximum) becomes less, than minSize. The main difference that the result of work depends only on one parameter minSize that just and is classical definition ZigZag and provides an exact finding of all important peaks. "

The sixth ZigZag

ExtIndicator = 5 Hannah includes ZigZag, simulating swings. It's trend indicator.

Algorithm

The detailed description of construction of swings Hannah is brought in the book [4]. Some known indicators building swings Hannah, have been created on the algorithm described in the book. The description very detailed. It is possible to tell, detailed up to boreness. But, nevertheless, when you start to do under the given description the indicator, there are many questions. There are combinations of candles which are complex for analyzing, difficultly to build swings. There are different treatments of the developed situation. Likely, therefore known realizations of swings Hannah in indicators have those or other deviations from the algorithm described in the book.

In our case of differences two. Both differences are connected with processing an external bar. The external bar is the bar having higher High and lower Low, than previous. In the description it is spoken, that on an external bar the Maximum and the Minimum should be constructed. In indicator ZUP now it is impossible to work with indicator ZigZag, at which minimum and maximum on one bar. Besides from the description follows, that the minimum and a maximum should alternate in the certain sequence. First there should be that extremum of an external bar which is closer to opening a candle. In real time it to realize it is possible. But on history "free" interpretation begins. And the swings constructed in real time, can differ from what will be constructed on the same interval of time after a while on historical data. That is there, where in real time there was a maximum, at construction on historical data can receive a minimum. That there was no ambiguity, on an external bar the tendency will continue that, that was up to an external bar. But as on an external bar the tendency under the description should vary, for the intermediate, basic (main) tendency and for tendencies of higher orders we shall consider an external bar as a bar with which calculation of bars for revealing the further development of the tendency begins. It is the main difference. At comparison with other indicators drawing swings Hannah, this difference slightly influences revealing of swings. "Fine" swings which should be on an external bar, in the general picture did not play a role. And in some cases the indicator revealed the swings passed by other indicators on significant sites of historical data.

The second difference - insignificant. In some cases this difference helps to reveal swings on flat sites of history of quotations. Within the limits of given clause this difference is complex enough for describing in the accessible image, therefore I shall not give it here. The author has gone, we shall tell so, on an occasion at other programmers who have realized swings in the indicators. Has made processing an external bar so that it was similar to realization in other indicators. However, as it is realized in other indicators, did not look. The code of indicators did not look. It is complex to assort an another's code. Looked only at the figure created by the indicator.

Parameters

minBars sets the tendency:

1. minBars = 0 - the small tendency - one bar;
2. minBars = 1 - the intermediate tendency - 2 bars;
3. minBars = 2 - the main (basic) tendency - 3 bars;
4. minBars > 2 - tendencies of higher order.

Mode DT

For the first time mode DT has applied [klot](http://www.mql4.com/ru/users/klot) in indicator DT-ZigZag.mq4. In this mode on the chart current timeframe it is deduced ZigZag, constructed on more older timeframe. The algorithm of construction in ZUP differs from what has developed [klot](http://www.mql4.com/ru/users/klot). Its idea is used only.

In mode DT are used external ZigZag. External ZigZag have different algorithms of construction. It is necessary to use ZigZag, entering in delivery of last from available versions ZUP:

1. ExtIndicator = 6 - mode DT with external indicator ZigZag_new_nen3.mq4. Its algorithm corresponds ZigZag from mode ExtIndicator = 0;
2. ExtIndicator = 7 - mode DT with external indicator DT_ZZ.mq4. DT_ZZ.mq4 has developed [klot](http://www.mql4.com/ru/users/klot);
3. ExtIndicator = 8 - mode DT with external indicator CZigZag.mq4. CZigZag.mq4 has developed [Candid](http://www.mql4.com/ru/users/lna01);
4. ExtIndicator = 10 - mode DT with swings Hannah with external indicator Swing_ZZ.mq4. Its algorithm corresponds ZigZag from mode ExtIndicator = 5.

At installation of indicator ZUP four external indicators ZigZag should be copied in a folder with the user indicators of the client terminal.

Parameters

GrossPeriod - the number of minutes of that timeframe under which indications is under construction ZigZag in mode DT. GrossPeriod can accept following values: 5-15-30-60-240-1440-10080-43200 corresponding timeframes M5-M15-M30-H1-H4-D1-W1-MN. For all modes DT in parameter GrossPeriod the older timeframe from which data for construction of a zigzag on current timeframe are used is set. Except for GrossPeriod for the task of parameters ZigZag parameters minBars, ExtDeviation and ExtBackstep are used:

1. For ExtIndicator = 7 parameters ZigZag are set only by value minBars;
2. For ExtIndicator = 8 parameters ZigZag are set by values minBars, ExtDeviation;
3. For ExtIndicator = 10 parameters ZigZag are set by value minBars.

Construction on chart

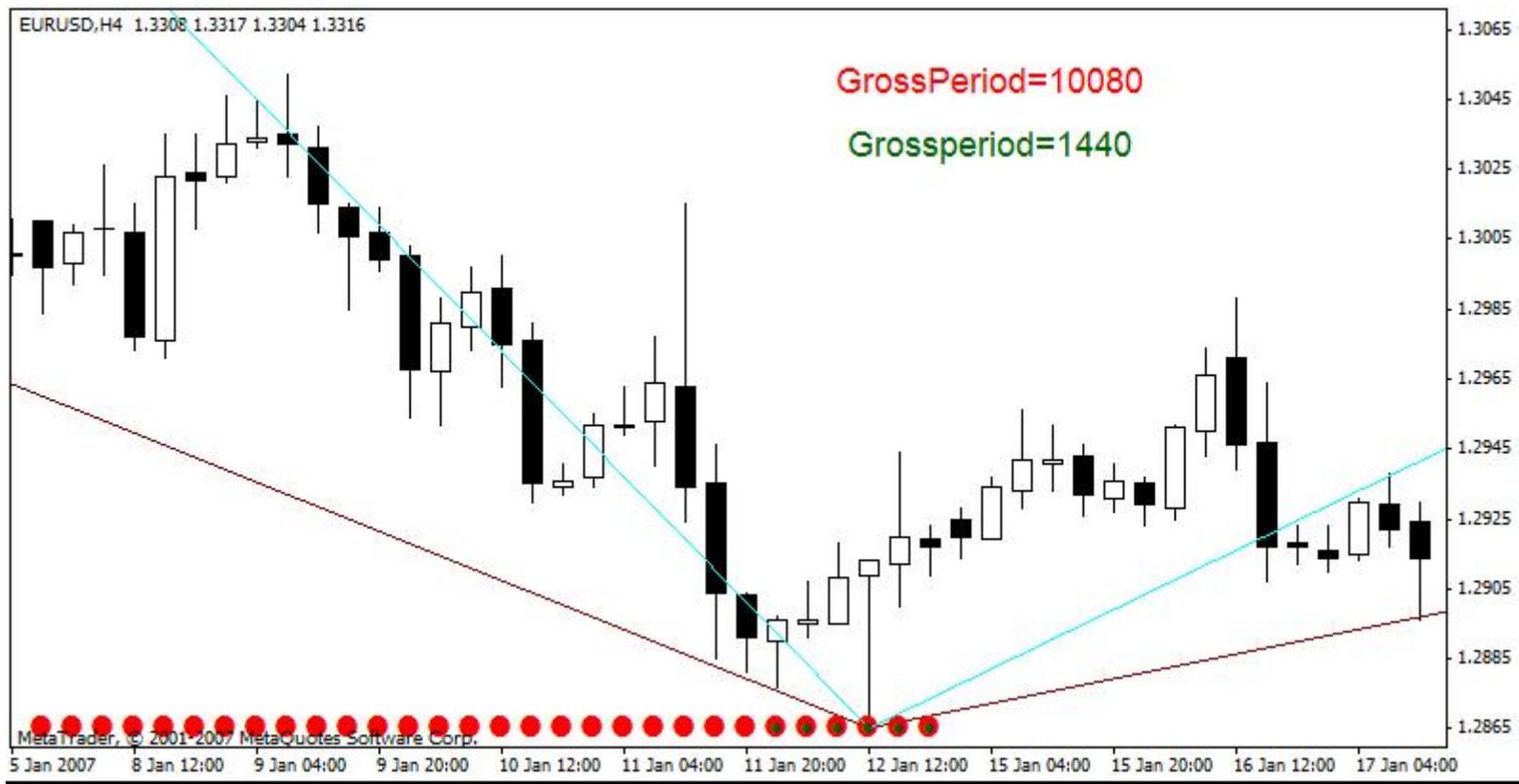
On the chart below the example of construction on four-hour timeframe ZigZag according to with day time timeframe is shown. Red points settle down on minima or maxima of candles four-hour timeframe which enter into candles day time timeframe. On corresponding candles day time timeframe crises ZigZag have been constructed. Six red points correspond to six four-hour candles.



There are situations when for a maximum or a minimum of a candle of the senior timeframe on younger timeframe it will not be found candles with a corresponding maximum or a minimum. Crises ZigZag will be constructed on value of the price taken from the senior timeframe. And as on younger timeframe there will be no candles with such by a number of points will be groundless. And crises ZigZag will be groundless also. In this situation by means of parameter ZigZagHighLow it is possible to choose, to what point to adhere tools - patterns Pesavento, [Andrews pitchfork](http://www.kroufr.ru/content/view/682/124/) <<http://www.kroufr.ru/content/view/682/124/>> and so on:

1. ZigZagHighLow = true - tools become attached to minima and maxima of bars younger timeframe;
2. ZigZagHighLow = false - tools become attached to crises ZigZag, that is to minima and maxima of bars of the senior timeframe.

Let's consider an example of a conclusion of several ZigZag with different timeframes. On the chart two are deduced ZUP_v60 with parameter ExtIndicator = 6. Color and diameter of points is chosen on option COLORS at number 5. At first indicator Grossperiod = 10080. Color of points - Red - and diameter of points - 5. Color of lines ZigZag - Maroon on option COLORS of the panel of a choice of parameters of the indicator at number - 0. Quantity of red points - 30. In a week candle of 30 four-hour candles. At second indicator GrossPeriod = 1440. Color of points - DarkGreen and diameter of points - 1. Color of lines ZigZag - Aqua. Quantity dark green candles - 6. In a day time candle of 6 four-hour candles.



That there was an imposing indications of different indicators, as shown in our example (dark green points were atop of red), it is necessary to observe the order of connection of indicators ZUP to the chart. First we connect the indicator with red points. Then with dark green. The important property of this operating mode. If we with the specified set of indicators shall translate the chart with four-hour timeframe on week the indicator with dark green points will not be deduced on the chart. The indicator with dark green points uses data with day time timeframe. Day time timeframe in relation to week is younger. And in mode DT construction ZigZag on younger timeframe according to from the senior timeframe is conducted. Hence, on week timeframe it should not be deduced ZigZag younger - day time-timeframe. At transition to the period more day time data of the day time period to be deduced should not. Below the conclusion of indicators from the considered example on the day time chart is shown. The quantity of points has changed. Red points became 5 - number of day time candles in week five. dark green points became - 1.



Red and dark green points help to define timeframe, according to with which is constructed corresponding ZigZag. For the best orientation all is possible constructions for everyone timeframe to do in uniform color registration. In particular, points for mode DT always to paint for different timeframes in different, in advance certain, colors.

One more important addition. At work with mode DT on timeframe GrossPeriod depth of history of quotations should be more, than on the working period. If it will not be, at immersing in history on younger timeframe on greater depth, than is on GrossPeriod, ZigZag will do erroneous constructions. Also at work with mode DT misses of quotations on different timeframes cause wrong construction ZigZag. If in mode DT ZigZag it was constructed with failures two minima or two maxima, for example, were constructed successively it is necessary to check up quotations current timeframe and timeframe GrossPeriod on presence of the passed bars. If there are passed bars it is necessary to remove history corresponding timeframe from catalogue C: \Program Files \Metatrader \history \xxx\ and to load history again.

ZigZag on indicator RSI

ExtIndicator = 9 - an operating mode in a window under the chart with indicator RSI. The special version of indicator ZUP_RSI_v48 in which this mode has been involved for construction ZigZag under indications of indicator RSI has been let out. Only in version ZUP_RSI_v48 mode ExtIndicator = 9 is used. In the given version the opportunities which have appeared in version 49 and later versions are not used. After connection to the chart of the given version of the indicator it is necessary to switch timeframe that graphic tools began to be under construction.

Algorithm of construction ZigZag RSI trend. An example of construction ZUP_RSI_v48 for mode ExtIndicator = 9 on the chart from the previous example. Running a little forward I shall tell, that on the chart by means of ZUP_RSI_v48 patterns Pesavento <<http://www.ensignsoftware.com/tips/tradingtips35.htm>> and static Andrews pitchfork <<http://www.kroufr.ru/content/view/682/124/>> are deduced.

1. It is possible to deduce only one copy of the indicator. And the subsequent copies work as the second incorrectly;
 2. Did not begin to set rigidly levels of 100 % and 0 %. Therefore peaks and hollows ZigZag on height will not coincide with indicator RSI. ZigZag it will be deduced on all height of a window. At scaling chart ZigZag also it is scaled;
 3. Did not become for given version to correct a conclusion twisted Andrews for the certain candles. For the given mode the conclusion such twisted is irrelevant;
- All other tools ZUP work in this mode. Including calculation of quantity of bars on beam ZigZag that is interesting to researches. Also all modes, given in parameter ExtIndicator, work. Thus ZigZag with all equipment it is deduced in a window under the chart, instead of in a window with the chart. Probably, any defects are available in the given version. It is complex to test the indicator for such non-standard mode. This version of the indicator is intended for experiments.

Search of patterns Gartley

ExtIndicator = 11 includes indicator ExtIndicator = 0 in a mode of active scanning for search [of patterns Gartley <http://onix-trade.net/forum/index.php?showtopic=118&st=0>](http://onix-trade.net/forum/index.php?showtopic=118&st=0). The mode of active scanning by search of patterns Gartley creates a greater loading on the processor. At strong movements in the market the terminal can hang for some time. When the cycle of calculation will end, lag disappears. At active scanning search of parameter minBars (Depth) is made. Is under construction ZigZag for each value minBars (Depth). Further search of patterns Gartley on constructed ZigZag is conducted. This operation repeats for all range of values minBars (Depth) from minDepth up to maxDepth until pattern Gartley will be found. The indicator uses following parameters:

1. ExtGartleyOnOff - includes display of patterns Gartley for all modes, except for ExtIndicaotr = 11. Thus the pattern if it was constructed, for the chosen mode will be found. Search of parameters ZigZag thus will not be. Search of patterns Gartley is made on the only thing constructed ZigZag. This parameter does not concern to mode ExtIndicator = 11;
2. maxDepth - sets the maximal value up to which parameter Depth of a zigzag can change at active scanning for search of patterns Gartley. This parameter is better for using less that there was less loading on the processor. But, on the other hand, too small value will not allow to find some patterns. The parameter is necessary for picking up experimentally;
3. minDepth - sets minimal value Depth for search of patterns Gartley;
4. DirectionOfSearchMaxMin - sets a direction of search of parameter Depth:

false - from minDepth to maxDepth;

true - from maxDepth to minDepth.

It is better to use true. Thus "larger" patterns Gartley first of all will be found. In some cases some patterns in " a working zone " are formed. That is points D of patterns coincide or are beside. At active scanning search stops at a finding of the first pattern. The choice of a direction of search of patterns enables a choice, what pattern will be found: with the minimal sizes or with the maximal sizes.

5. maxBarToD - sets a maximum quantity of bars from a zero bar up to point D of a pattern. If on this site the pattern is not found, further this quantity of bars search of patterns will not be spent. For trade important that point D was on the nearest bars from a zero bar. At an arrangement of point D at a great distance from a zero bar the pattern can be not so actual for trade;
6. ExtDeltaGartley - sets the admission on a deviation of the price from the recommended retracement values of a pattern. By default 0.09 - 9 %;
7. ExtCD - size of a beam of CD of a pattern concerning beam BC after which the analysis of a pattern begins;
8. ExtColorPatterns - color of triangles of patterns.

To look, what pattern is found, it is necessary to include parameter infoTF. In the second line of comments the name and type of a pattern - bear or bull will be deduced. For search of patterns the algorithm of active scanning is used. If the pattern will be found, the zigzag with parameters will be constructed:

1. Depth - value at which on constructed ZigZag the pattern has been found;
2. ExtDeviation and ExtBackstep - the parameters set in a window of parameters of the indicator.

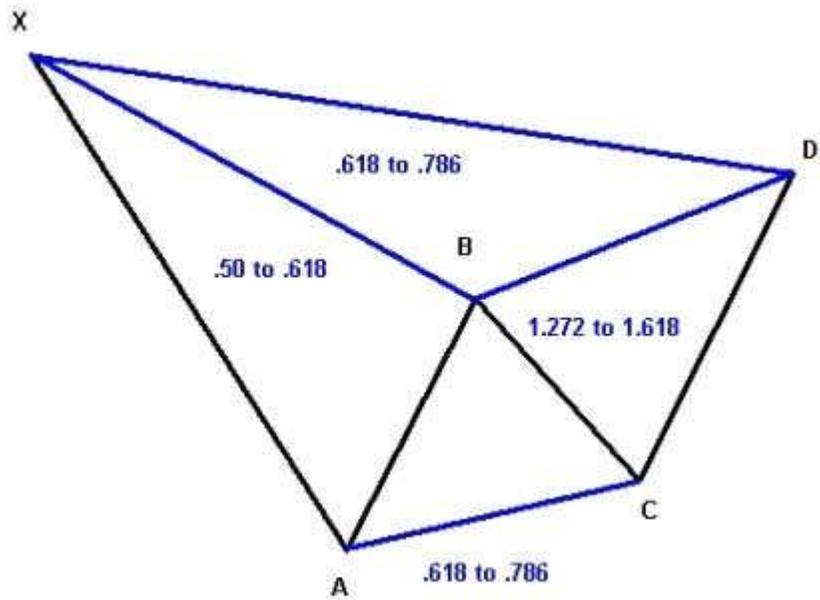
The found pattern as though calibrates ZigZag the found value If the pattern will not be found, will be constructed ZigZag with parameters: minBars, ExtDeviation and ExtBackstep - set in ZUP parameters.

In a name of the triangles which are painting over patterns, it is possible to see value ExtIndicator, parameters of a zigzag for corresponding ExtIndicator and quantity of bars up to point D. The name of triangles is accessible through properties of triangles. Having opened properties of a triangle, in the name of graphic object we shall see, for example, *Triangl2_ExtIndicator=0_11 //5/3_14, where:

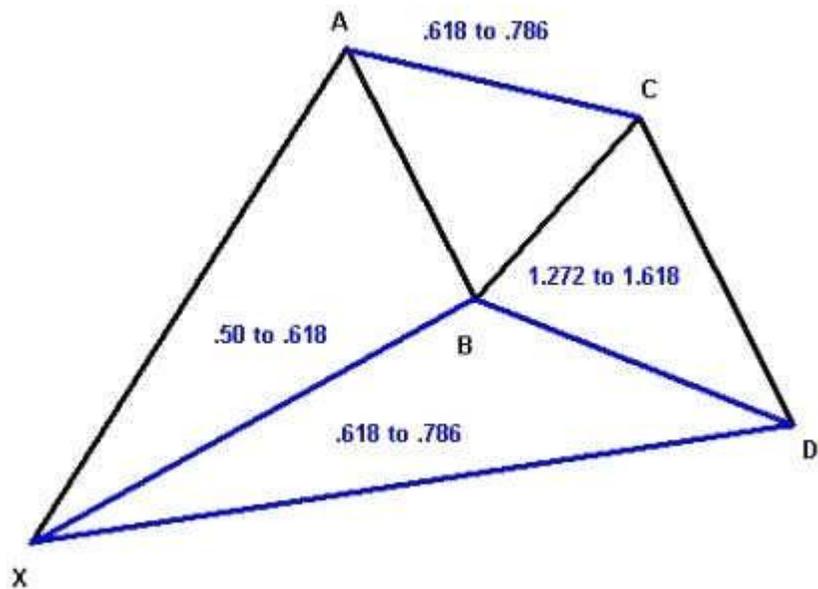
1. * - number of complete set ZUP;
2. Triangl2 - the right triangle of a pattern;
3. ExtIndicator=0 - zigzag on which the pattern is constructed;
4. 11/5/3 - minBars=11, ExtDeviation=5, ExtBackstep = 3;
5. 14 - number of bars up to point D of a pattern.

There are situations when the pattern will be found. After that there is a strong movement in the market. And the pattern "is lost". It ZigZag on which the pattern has been found, it was reconstructed. For construction anew same disappeared a pattern it is possible to pass on smaller timeframe. On smaller timeframe there are more than candles and ZigZag can "hook" on the lost pattern.

Model of Bear pattern Gartley



Model of Bull pattern Gartley



If to build precisely all retracements as has described Scott Carney ([Harmonic Price Patterns <http://www.harmonictrader.com/price_patterns.htm>](http://www.harmonictrader.com/price_patterns.htm)) point D of a pattern will be in a range. The range turns out that point D can be defined on different retracements: through retracement BD and through retracement XD (retracement XD it is equal to the attitude of piece AD points to piece XA, $XD=AD/XA$). And these retracements often do not converge in one point. Because of such ambiguity also follows, that the algorithm of construction of butterflies should be "wholesale". The algorithm should grasp all admissible retracements by the gross. From here and the name "wholesale" algorithm.

When the butterfly is constructed on "wholesale" algorithm, more thin adjustment by means of patterns Pesavento and by means of dynamic and static Fibo-tools for finding-out of conditions of trade begins. ZUP finds a certain existential formation and gives it the name of any pattern Gartley. Further with this formation it is necessary to make the certain work for finding-out of conditions of trade. It is necessarily necessary to apply filters to definition of points of an input in the market. Filters can be combinations of candles, trend lines or other indicators. An example of construction in mode ExtIndicator = 11:



On it I finish review ZigZag, built in in indicator ZUP_v60.

The conclusion

In clause the ideas incorporated in a basis of indicator ZUP - a zigzag universal with patterns Pesavento are briefly described. Also descriptions ZigZag built in in indicator ZUP are resulted. In opinion of the author the basic algorithms of construction ZigZag are realized in ZUP. It enables to select for work that algorithm of construction ZigZag which is interesting to the trader. Thus all the built in graphic tools put into operation will be automatically adhered to chosen ZigZag. Probably, that in the further will be built in ZigZag with other algorithms.

In the archival files attached to article, there is a complete set of indicators ZUP_v60 and ZUP_RSI_v48. In a variant of the indicator which is being a file some errors are eliminated. Version ZUP_v60 which has been originally laid out at forum ONIX, has errors. The indicator is complex. I do not exclude, that in some market situations, there can be erroneous constructions. Errors of construction arise for the different reasons:

1. Errors in a code of the indicator;
2. Discrepancies because of features of a binding (joining) graphic tools to bars in MetaTrader 4. In particular, in some cases it is impossible to construct channels Fibonachchi properly ([the Offer to developers of the metatrader. <http://www.metaquotes.ru/forum/8081/>](http://www.metaquotes.ru/forum/8081/));
3. If the graphic tool by means of ZUP on any timeframe is constructed and kept on the chart at switching MetaTrader 4 on another timeframe this graphic tool often changes the sizes and a direction of lines. There is an erroneous construction of the graphic tool. In second clause it will be offered to developers MetaTrader 4 how to change this feature. If the graphic tool to not keep on the chart, and to use it together with ZUP at switching on another timeframe erroneous constructions do not arise. It is reached by means of recalculation of points of a binding of graphic tools.

The first type of errors is corrected in process of their revealing. The second and third type of errors I hope to eliminate by means of developers of the client terminal. In following article will be described built in in ZUP indicators and graphic tools.

The literature

1. A.Stakhov, And, Слученкова, I.ShCherbakov « the Code Da Vinci and numbers Fibonacci ». The edition Peter, 2007;
2. Sokolov Ю.Н. « [The general theory of a cycle or the uniform theory of physical interactions. <http://www.ncstu.ru/cycles>](http://www.ncstu.ru/cycles) » СевКавГТУ. Stavropol, 2003 () the North-Caucasian state technical university;
3. Sokolov Ю.Н. « [The general theory of a cycle <http://nostalgia.ncstu.ru/content/docs/pdf/cycles/interaction/all.pdf>](http://nostalgia.ncstu.ru/content/docs/pdf/cycles/interaction/all.pdf)+;

4. James Kherzhik " Model. The price and Time. Application of the Theory Hannah in systems of trade ";
5. S.Carney. The Harmonic Trader;
6. L.Pesavento. Fibonacci Ratios with Pattern Recognition;
7. L.Pesavento. Profitable Patterns for Stock Trading.

The attached files:

■ <http://articles.mql4.com/ru/download/1025>>ZUP_RSI_v48.zip <<http://articles.mql4.com/ru/download/1025>> (30.9 Kb)

■ <http://articles.mql4.com/ru/download/1026>>ZUP_v60.zip <<http://articles.mql4.com/ru/download/1026>> (38.1 Kb)