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The Harmonic Analyzer ™

User Guide

Last Updated February 8th 2003

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In terms of bug reporting or questions on the software, please direct emails to **HA_Support@HarmonicTrader.com** as follows:

If the email is to report a bug then, the subject line of the message should be prefixed with **HA_BUG** e.g.

To: HA_Support@HarmonicTrader.com
Subject: HA_BUG This bit doesn't work ...

If the email is a question or comment then, the subject line of the message should be prefixed with **HA_QUEST/HA_COMM** e.g.

To: HA_Support@HarmonicTrader.com
Subject: HA_QUEST How do I do this ?

or

To: HA_Support@HarmonicTrader.com
Subject: HA_COMM This is a fantastic piece of software ;-)

Introduction

The Harmonic Analyzer (HA) is a revolutionary new charting and analysis tool dedicated to the analysis of Harmonic (fibonacci) price patterns. To learn more about Harmonic Analysis visit the HarmonicTrader.com website: http://www.HarmonicTrader.com

Chart Example: Microsoft (MSFT)

A screenshot of the HA ™ is shown below for Microsoft (MSFT) showing two back to back Harmonic Pattern matches (a Butterfly followed by a Gartley). Both matches resulted in significant reversals. This guide will take you through all the features of the HA.

Data Sources

Before you can use the HA you will need some stock data to analyze. The HA can download FREE end of day data from the Yahoo!™ Historical Quotes website. The HA can also import end of day data from Worden Brothers, Inc. TC2000® or Commodity Systems, Inc. (CSI) Unfair Advantage®. If you intend importing data from TC2000® or CSI Unfair Advantage® you will first need to install the software from these vendors and subscribe to their data services. More information on each of these data sources is provided below.

Yahoo!™ Historical Quotes

End of day data is freely available from the Yahoo!™ finance website http://quote.yahoo.com/ The data for the current day is available several hours after the market closes.

Worden Brothers, Inc. TC2000®

Worden Brothers, Inc. offers a software charting tool named **TC2000®** which also takes care of downloading and maintaining their end of day data on your PC. The HA interacts with TC2000® in order to import data into the HA. At the time of writing this guide, TC2000® is available FREE and is obtained by requesting a CD ROM via their website (the TC2000® CD also includes historical data). The TC2000® end of day data service costs $29.95/mnth. For more information refer to Worden Brothers, Inc. TC2000® website: http://www.tc2000.com/

Commodity Systems, Inc. (CSI) Unfair Advantage®

Commodity Systems, Inc. (CSI) offer a software charting tool named **Unfair Advantage®** which also takes care of downloading and maintaining their end of day data on your PC. The HA interacts with CSI Unfair Advantage® in order to import data into the HA. At the time of writing this guide, the CSI Unfair Advantage® software costs $150 for the North American Data version and $300 for the World Data version. The end of day data service starts from $19.95/mnth. More information regarding CSI Unfair Advantage® and the data services offered by CSI can be found at CSI's website: http://www.csidata.com.ua.html/

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Downloading/Importing Price Data

To download/import price data, click on the download data button on the toolbar and the **Download Price Data** dialog will popup. First select the data source that you wish to use either Yahoo, TC2000® or CSI Unfair Advantage®.

The first time you select TC2000® or CSI Unfair Advantage®, a dialog will popup which will install some additional software required by the HA to import data from TC2000®/CSI Unfair Advantage® programs.

Press the green “Install TC2KSVR”/”Install UASVR” button on the dialog and the additional HA software will be installed.

If you do select TC2000® or CSI Unfair Advantage® as the data source, the Data Downloader buttons change from saying “**Download**” to “**Import**”. In the remainder of this text “**Download”** has been used to identify the various options but if you are using TC2000® or CSI Unfair Advantage® then the dialog will actually say “**Import**”.

IMPORTANT: Before you import data from TC2000®/CSI Unfair Advantage® you must first run TC2000®/CSI Unfair Advantage® to update the stock databases maintained by these tools.

In the “**Download New Price Data For:**” text box type type the symbol for the stock that you wish to download data for. In the example below, the symbol for Microsoft has been entered (**MSFT**). Set the “**Download From:**” date to specify how far back you wish to download data from. For example, **01/01/1978**. Generally speaking, the more data you have the higher the probability there is of finding large (multi month/year) harmonic pattern matches. Make sure you are connected to the internet and then press the **Download** button or press the Enter key and the data will be downloaded. As shown below, messages appear in the data downloader dialog’s log window to keep you updated on the progress of the download. Repeat this process until you have downloaded data for all the stocks you are interested in.

If you are going to be downloading data for a lot of stocks then consider creating a stock group file as described HERE. This feature allows you to specify a list of stocks you want to download data for and the Data Dowloader will then be able to download the data for all the stocks in one go.

IMPORTANT NOTE: If the downloader log window reports that there were errors during the download (as shown below) this may mean that the data server was busy or currently off-line. You should try again later. If there were only a small number of failures then you can press the Retry button (this button is described in the Retry Updating Price Data section).

Updating Price Data

After each trading day you will need to update the data for all the symbols in the HA Data folder.

IMPORTANT: Before you import data from TC2000®/CSI Unfair Advantage® you must first run TC2000®/CSI Unfair Advantage® to update the stock databases maintained by these tools.

Click on the "**Update Existing Price Data For:**" button and the symbol list will become active. If you leave the symbol list set at "**ALL SYMBOLS**" then the price data for all stocks you have data for will be updated. By default an **incremental** update will be performed. This means the Harmonic Analyzer will only download enough data to bring each of your stocks data up to date. To start the incremental download press the "**Download**" button. The downloader dialog window will display the status of the incremental download as it proceeds.

- **IMPORTANT NOTE: Every couple of weeks or so, it is a good idea to do a FULL download formal SYMBOLS. The data vendor from time to time may make corrections to the data and these corrections may be missed if you do an incremental download. A FULL download ensures the integrity of your data. Also, if the stock goes through a stock split, a FULL download must be performed AFTER the split to ensure your data reflects the split. A FULL download is achieved by selecting the "FULL Download From" setting rather than the Incremental setting.**

RETRY Updating Price Data

When downloading data for multiple stocks some data may fail to download due to the data server being busy or off-line. As shown below, out of the 8 downloads 2 failed.

The **Retry** button allows you to attempt the **FAILED** downloads again. If you are downloading data for a lot of stocks and you are getting a lot of failures (maybe the data server is very busy) you can abort the entire download by pressing the **ABORT** button. You can then try again later. As shown below, pressing the **Retry** button results in the data for **CSCO** and **IBM** being downloaded again (this time successfully).

IMPORTANT: If you see DATA MERGE FAILED messages (see screenshot below) then you must do a FULL download for these stocks instead of an incremental download.

You can select a single stock from the list and only the data for that stock will be updated. In this case **Cisco (CSCO)** has been selected. Once you have made the appropriate selection press the "**Download**" button.

The log window of the dialog will keep notified with the progress of the download.

Important Note: Once the Harmonic Analyzer has initialized and you have downloaded all the data that you need, there is no need to stay connected to the internet and you can go off-line if you wish.

Chart Basics

Once you have downloaded some data you can open up the charts for these stocks by pressing the open chart button on the HA toolbar or typing **CTRL-O**. From the resulting **Open Chart** dialog select the stock symbol from the "**Open Chart For:**" drop down list or start to type the symbol name in the Find: text box ().

Press the "**Open Chart**" button or press the Enter key. The chart will be loaded and will appear in the chart window. The chart will be automatically scaled to fit the chart window. You can move around the chart using the horizontal/vertical scrollbars, zoom in (**SHIFT-I**), zoom out (**SHIFT-O**) and jump scroll to the most recent price action . You can also move around the chart by dragging the mouse around the chart window (moving the mouse around the chart window while the left mouse button is pressed). The chart will scroll up/down/left/right as the mouse is dragged. As you move around the chart the status bar at the bottom of the window shows the open, high, low and close for the price action closest to the mouse. The price action closest to the mouse is highlighted in the chart and in the technical indicator window.

You can record notes about the current chart in the **NOTES** text area to the left of the chart window. This text area can be minimized by pressing the left pointing arrow at the top of the vertical bar that divides the notes from the chart. Pressing the right pointing arrow at the top of the vertical bar will expand the notes again. The notes get saved with the chart and are restored again when the chart is reloaded.

The horizontal splitter separating the chart and technical indicator windows can be dragged up or down to resize these windows. The vertical splitter separating the chart and the **NOTES** section can be dragged left or right to resize the notes/charts windows.

You can display the chart as a candlestick, bar or line chart by selecting the appropriate option from the **View** menu. The grid lines can be shown/hidden by pressing the show/hide grid lines button on the HA toolbar.

Press the gap button or type **CTRL-G** to show/hide price gaps. This is explained in more detail HERE. You can switch between daily and weekly charts by pressing the appropriate radio button on the HA toolbar Daily Weekly or typing **SHIFT-D** or **SHIFT-W**.

All the colors used by the HA are user definable and can be changed by selecting **Color Settings ...**from the **Options** menu. This is described in more detail HERE.

Trendlines can be drawn in the chart window and this is explained HERE. Text annotations can be added to the HA charts and this is explained HERE.

You can overlay Simple or Exponential Moving Averages (SMA/EMA) onto the price chart by checking the appropriate check boxes. The type of moving average, period and color of the line used can be set by selecting **Define Moving Averages ...** from the **Indicators** menu. This is described in more detail HERE.

The HA supports a number of customizable Technical Indicators and displays these in the Technical Indicator window. This is described in more detail HERE.

Having made changes to a chart e.g. drawn trendlines, added text annotations or changed indicator parameters, you can save the chart by pressing the save button on the HA toobar or by typing **CTRL-S**.

The HA Symbol Chooser

A number of the HA dialogs require you to specify a stock symbol name. Common to all these dialogs is a drop down symbol list which lists all the stock symbols that you have downloaded data for. To the right of the symbol list is a **Find** text box.

If you click on the symbol list the symbol list will expand and a vertical scrollbar will appear to the right of the list allowing you to scroll through the symbols in the list.

If there are a large number of symbols in the list you can type the first letter of the symbol name that you are looking for and the list will jump to the first symbol that starts with that letter. If you type the same letter again the list will scroll to the next symbol that starts with that letter and so on.

As an alternative to scrolling through the symbol list you can start to type the name of the symbol in the **Find** text box. As you type the symbol name the symbol list will dynamically scroll to the symbol that starts with the letters typed so far. As soon as the symbol list shows the symbol you are looking for you can stop typing. For example, you may only need to type '**C**' and then '**S'** in the **Find** text box in order for the symbol list to display **CSCO**.

The HA Color Chooser

The HA Color Chooser will appear whenever you press the Set Color button on the HA toolbar (to the left of the Trash Can button) or when you click on a color in the Color Settings Dialog (explained HERE) or the Define Moving Averages dialog (explained HERE). By default the HA Color Chooser will display a selection of Swatches (small colored squares). You can click on any one of these squares to select that color. Once you've made your selection press the OK button.

If none of the swatches match the color you are looking for, select the closest match and then press the **HSB** tab. The colored square in the center of the dialog represents a range of shades for this color. Click on the white circle and drag it around the shaded square until it is on top of the shading you require.

Pressing the **RGB** tab provides a further alternative for specifying the required color.

Once you've made your selection press the OK button.

Customizing HA Chart Colors

Virtually all the colors used by the HA can be customized by the user. From the **Options** menu select the **Color Settings ...** menu item and a color table will be displayed:

The color table has two columns. The first column lists all the **HA Color Labels** associated with the user customizable HA colors. The **HA Color Labels** are prefixed with either **IndicatorChart_, PriceChart_** or **Notes_** to indicate what the color is associated with. Clicking on a color in the right hand column next to a **HA Color Label** will bring up the color chooser dialog which will allow you to change the color associated with that label. All your color settings will be saved when you exit from the HA.

HA Color Label	Color
IndicatorChart_RSI_Overbought	
IndicatorChart_RSI_Oversold	
IndicatorChart_RSI_SignalLine	
IndicatorChart_RSI_Text	
IndicatorChart_Stochastic_CentreLine	
IndicatorChart_Stochastic_Line	
IndicatorChart_Stochastic_Overbought	
IndicatorChart_Stochastic_Oversold	
IndicatorChart_Stochastic_Text	
IndicatorChart_Volume_Average	
IndicatorChart_Volume_DownDay	
IndicatorChart_Volume_UpDay	
Notes_Background	
Notes_Text	
PriceChart_Background	
PriceChart_Bollinger	
PriceChart_DateScale	
PriceChart_DateScale_TextMajor	
PriceChart_DateScale_TextMinor	
PriceChart_GapDown_Filled	
PriceChart_GapDown_Unfilled	
PriceChart_GapUp_Filled	
PriceChart_GapUp_Unfilled	
PriceChart_Grid	
PriceChart_MA0	
PriceChart_MA1	
PriceChart_MA2	
PriceChart_MA3	
PriceChart_MA4	
PriceChart_Pattern_Bearish	
PriceChart_Pattern_BearishPatternLabel	
PriceChart_Pattern_BearishProjectionLines	
PriceChart_Pattern_Bullish	
PriceChart_Pattern_BullishPatternLabel	
PriceChart_Pattern_BullishProjectionLines	
PriceChart_Pattern_DottedLegRetracements	
PriceChart_Pattern_LegRetracementText	
PriceChart_Pattern_PRZ_LabelLines	

For example, to change the background color used for the price chart locate the **PriceChart_Background** HA Color Label and click on the color next to it in the second column. The HA Color Chooser will be displayed allowing you to select a new color for the chart background. When you've made your selection press the **OK** button on the HA Color Chooser and the chart background will change

to the new color. Repeat this process until you have set the HA colors the way you want them. The HA color chooser dialog is described in more detail HERE.

Also under the **Options** menu are **Default Colors** and **Color Variation 1** options. The **Default Colors** option resets all the HA colors back to their defaults and the **Color Variation 1** option sets the HA colors to a preset lighter level.

Drawing Trendlines

The tool starts up in normal mode which is denoted by the selected normal mode button . To switch to trendline mode simply press the trend line drawing mode button . Press the color chooser button (initially blue) to select the color you wish to use for the line (the HA color chooser dialog is described in more detail HERE). Now move the mouse to the point where you want the trendline to start and keep the left mouse button pressed while you move the mouse. The trendline should then be drawn from the initial starting point to the current location of the mouse. Trendlines can be drawn in both the price chart window and the technical indicator window.

To reposition a trendline switch back to normal mode by pressing the normal mode button . Select the trendline by clicking and releasing the left mouse button while the mouse is over the trendline. Red dots will appear at either end of the trendline to indicate it has been selected. Depress the left mouse button and drag either the center or one end of the trendline to the desired location. Dragging the end of the trendline will stretch the trendline in the direction of the mouse movement whilst dragging the center of the trendline will move the entire trendline without stretching it. Stretching and repositioning a line is illustrated below:

Stretch Line

Move Line

To change the color of an existing trendline simply select it by clicking and releasing the left mouse button while the mouse is over the trendline. Then press the color chooser button on the HA toolbar. Select a new color for the line from the color chooser and press the OK button (the HA color chooser dialog is described in more detail HERE).

To delete a trendline select it and then press the delete button . To delete **ALL the** trendlines on a chart click the right mouse button in the chart window and from the popup menu select "**Delete All Trendlines**".

All trendlines can be shown/hidden by pressing the show/hide trendlines button on the HA toolbar or by typing **CTRL-T**.

A trendline can be cloned by first selecting the trendline and then typing **CTRL-L**.

The thickness of a trendline can be varied by selecting the trendline and repeatedly pressing the Increase Line Thickness button on the HA toolbar. This is illustrated below:

The style of a trendline can be switched between solid and dashed by selecting the trendline and pressing the Dashed Line button on the HA toolbar. This is illustrated below:

Adding Text

You can add your own text annotations to the chart and these will be saved with the chart when the chart is saved. To add a text annotation click on the add text button on the HA toolbar and a text box will appear in the chart window highlighted with a yellow border. The text box can be positioned anywhere in the chart by clicking the left mouse button on the yellow outline of the textbox and dragging the textbox to the desired location.

When the text box is first added it contains the string "**Some Text**" which is in the current color. If you wish to change the color of the text first click on the text so that the yellow highlight box appears around the text and then click on the color chooser button on the HA toolbar (the HA color chooser dialog is described in more detail HERE). Once you've chosen a new color the text will change to that color.

To type your own text into the text box or to modify some existing text, simply click on the text so that the yellow highlight box appears around the text and start typing your text. The text can occupy multiple lines. Simply press the Enter key on your keyboard at the end of the current line and the cursor will move onto the new line. You can move the text cursor around the text box by using the arrow keys on the keyboard or by clicking the mouse. The textbox can be resized by dragging the lower right hand corner of the textbox (shaded in red) inwards or outwards. The size of the font used for the text can be increased by first clicking on the text so that the yellow highlight box appears around the text and then repeatedly pressing the Resize Text button on the HA toolbar .

Printing a Chart

To print out the current chart simply press the button or type CTRL-P. A print dialog will appear which will allow you to setup the print options for your printer. Only the visible portion of the price and indicator charts will be printed so select the appropriate zoom level to display what you want to print.

The chart will be positioned on the paper so that the right hand side of the chart is always printed (to ensure the price scale always fits on the paper). Depending on the size of the paper you are using and the printer options you have selected this may mean that some of the left hand side of the chart may not fit on the paper. Again adjust the HA zoom level to ensure that the portion of the chart that you wish to print fits on the paper.

Moving Averages

The HA can overlay up to 5 moving averages on the price chart. The type of moving average (simple or exponential) the period and the color of the line are all customizable. From the **Indicators** menu select the "**Define Moving Averages ...**" menu item and the **Define Moving Averages** dialog will popup.

For each of the 5 moving averages the dialog allows you to select between an exponential moving average (EMA) or a simple moving average (SMA). In the text box type the period you require for the moving average. Press the colored box to bring up the HA Color chooser to select the color you wish to use for each moving average (the HA color chooser dialog is described in more detail HERE).

Bollinger Bands

To the right of the moving average checkboxes on the toolbar is a checkbox for overlaying Bollinger Bands on the chart 20 Day Simple Moving Average with the bands plotted 2 standard deviations from this average. A UI for changing the moving average period and deviations will be provided in a later release.

Interactive Price Gap Highlighter

Press the gap button or type CTRL-G to show/hide price gaps. Up gaps are shaded in **green** and down gaps are shaded in **red**. In both cases the shading starts from where the gap was opened and extends to where the gap was filled. Unfilled gaps result in the shading extending across the chart to the current price action. Filled gaps are shaded in a darker red/green than those for unfilled gaps.

Manual Retracement/Projection Visualization

In addition to automatically scanning for various retracement/projection levels during a Harmonic Analysis (explained HERE), the HA allows you to manually add retracement levels to the chart. First you need to identify the beginning and the end of the move you wish to see the retracement/projection levels for. To achieve this move the mouse over the price action which represents the beginning of the move (the start of either an upward or downward leg) so that the price action is highlighted (in red). Now type **CTRL-B** or press the right mouse button and select the '**Mark Move Begin**' menu item from the popup menu to mark the beginning of the move. The price action should change color (cyan). If it doesn't, make sure that

the show retracement lines button is depressed. Now move the mouse over the price action which represents the end of the move (the end of either an upward or downward leg) so that the price action is highlighted (red). Now type **CTRL-E or** press the right mouse button and select the '**Mark Move End**' menu item from the popup menu to mark the end of the move. The price action should change color (cyan) and the **Retracement Levels** dialog will pop up.
The retracement levels you wish to see are displayed on the chart when the checkbox next to the retracement level has been checked. When the chart is saved, the retracement level lines are saved along with the chart.

To change the default colors used for the retracement level lines refer to the Customizing HA Chart Colors (explained HERE) section and in the HA color table locate the HA color labels named **PriceChart_Retrace_0.382** to **PriceChart_Retrace_3.140.**

PriceChart_Retrace_0.382	
PriceChart_Retrace_0.447	
PriceChart_Retrace_0.500	
PriceChart_Retrace_0.618	
PriceChart_Retrace_0.707	
PriceChart_Retrace_0.786	
PriceChart_Retrace_0.886	
PriceChart_Retrace_1.000	
PriceChart_Retrace_1.270	
PriceChart_Retrace_1.414	
PriceChart_Retrace_1.618	
PriceChart_Retrace_2.000	
PriceChart_Retrace_2.236	
PriceChart_Retrace_2.240	
PriceChart_Retrace_2.618	
PriceChart_Retrace_3.140	

All the retracement levels associated with this move are treated as a group. Pressing the + button on the **Retracement Levels** dialog will lengthen the entire group of retracement level lines. Pressing the - button on the **Retracement Levels** dialog will shorten the entire group of retracement level lines and pressing the = button on the **Retracement Levels** dialog will return the entire group of retracement level lines back to their default lengths. Any number of groups of retracement levels can be added to the chart by marking the begin/end of multiple moves.

If at a later date you wish to change which levels are being displayed in a particular group of retracement levels you should first select one of the retracement level lines on the chart. With the retracement level line selected, click the right mouse button and select '**Show Retracement Level Menu**' from the popup dialog and the **Retracement Levels Dialog** will open up with the checkboxes set according to the retracement level lines being displayed for that group. You can then select/deselect checkboxes on the dialog to alter which retracement levels should be visible.

As well as manipulating the retracement level lines as a group, the retracement level lines can be manipulated individually. Start by clicking on a retracement line to select it. When the line has been selected you can drag either end of the retracement line to make it longer or shorter. If you drag the Retracement line from its midpoint the whole line can be moved to the left or right. The color of the line can be changed by pressing the Color chooser button on the toolbar and selecting the desired color.
All the retracement level lines on the chart can be shown/hidden by toggling the show/hide retracement lines button or by typing **CTRL-R**.

All the retracement level lines on the chart can be deleted by right clicking in the chart and selecting **Delete All Retracement Lines** from the popup menu.

Technical Indicators

The lower chart window displays the technical indicators. One technical indicator can be displayed in this window at a time. As you move the mouse around the price chart the indicators will display their current values.

When a chart is loaded you can display a technical indicator by pressing the appropriate technical indicator button on the toolbar. For example, press the MACD(12-26-9) -0.61 button and the MACD indicator will be displayed in the indicator window. The following key combinations offer yet another way to scroll to the required indicator:

SHIFT-V	Volume
SHIFT-H	HVR
SHIFT-S	RSI
SHIFT-R	Stochastic
SHIFT-M	MACD
SHIFT-C	Chaiken Money Flow
SHIFT-A	ADX

The parameters used for the indicators (e.g. the MACD defaults to 26-12-9) can be changed in the indicator parameter dialog displayed when you press the Settings button. The indicator parameters can be set differently for daily and weekly charts. The indicator settings will be saved with the chart when you press the save char button or type CTRL-S.

If you wish to increase the size of the indicator window simply grab the central divider. This tool divides the price chart from the technical indicator chart and drag it upwards. The indicator window can be completely minimized by pressing the downward pointing triangle just above the settings button

For more information on the derivation and use of these technical indicators refer to the excellent education material on the StockCharts.com website http://www.stockcharts.com/

Technical Indicator Analyzer

The HA can analyze all the technical indicators for all the stocks that you have data for and present the results in a number of sortable tables. These tables allow you to quickly find "interesting" technical developments in stocks e.g. biggest price gainers/loosers, biggest volume movers, crosses above/below key EMA/SMA levels etc. etc. To perform the analysis press the Analyze... button on the HA toolbar

to and the Technical Indicator Analyzer dialog will popup.

From the "**Analyze Indicators For:**" drop down list select "**ALL SYMBOLS**" to analyze the technical indicators for all the stocks you have data for. or alternatively select a group. Although you can specify a single symbol, it makes more sense to specify a group or **ALL SYMBOLS**. Press the "Perform Analysis" button on the dialog to run the Technical Indicator Analyzer. As the analysis progresses the status will be displayed in the title bar of the dialog. When the analysis is complete a dialog will popup which consists of 4 tables. In the resulting tables, clicking on a table column header will sort the rows based on the data in that column.

By default the tables are sorted by symbol name.

Technical Indicator Analysis

Daily Analysis | Weekly Analysis | Daily Alerts | Weekly Alerts

Symbol	PriceGain%	^EMA13%	^EMA50%	^SMA20%	^SMA50%	^SMA200%
aapl	0.172	3.904	8.106	4.088	7.565	11.48
AMAT	5.271	0.007	1.266	-2.139	0.474	-3.69
AOL	-1.927	-7.505	-16.754	-11.505	-20.293	-48.35
brcm	0.42	-2.161	2.784	-2.867	-0.033	15.87
bvsn	-11.525	-9.257	-8.788	-11.782	-17.41	-33.36
cdn	0.844	3.627	2.681	4.086	0.405	6.60
CHIR	-1.213	-0.721	-3.773	-1.108	-3.95	-8.63
csco	0.42	-0.786	-0.229	-2.261	-3.012	5.82
dell	4.176	1.504	3.079	0.422	1.597	10.06
dhi	1.168	7.921	14.896	9.299	15.046	30.11
dia	0.408	-0.278	-0.346	-1.379	-1.071	-2.33
dyn	0.723	1.267	-13.624	-0.672	-17.381	-64.37
emlx	3.473	3.448	14.802	2.757	15.57	33.64
FNM	-0.245	0.367	1.642	1.745	2.043	1.
gnss	1.463	-11.736	-7.133	-17.735	-8.912	33.33
hal	6.776	18.104	-4.314	19.766	-6.338	-101.14
hd	-2.063	-3.874	-2.213	-5.838	-3.271	1.48
HLT	0.523	2.039	7.393	2.409	8.143	6.41
ibm	0.515	-5.13	-6.649	-8.833	-8.459	-0.55

Double click on any column header to sort the table based on the values in that column. In the screen shot below the **PriceGain%** column was double clicked to sort the table according to the highest percentage price gains for that day. In this case **hal** was the biggest gainer with a rise of 6.776%.

Technical Indicator Analysis

Daily Analysis | Weekly Analysis | Daily Alerts | Weekly Alerts

Symbol	PriceGain%	^EMA13%	^EMA50%	^SMA20%	^SMA50%	^SMA200%
hal	6.776	18.104	-4.314	19.766	-6.338	-101.14
klac	5.448	3.227	5.435	1.766	3.647	9.75
AMAT	5.271	0.007	1.266	-2.139	0.474	-3.69
nvls	4.967	0.569	0.203	-2.472	-1.103	-8.79
dell	4.176	1.504	3.079	0.422	1.597	10.06
emlx	3.473	3.448	14.802	2.757	15.57	33.64
SPLN	1.98	3.17	8.305	3.123	3.961	19.67
gnss	1.463	-11.736	-7.133	-17.735	-8.912	33.33
intc	1.446	0.255	3.991	-0.705	2.176	14.34
dhi	1.168	7.921	14.896	9.299	15.046	30.11
cdn	0.844	3.627	2.681	4.086	0.405	6.60
dyn	0.723	1.267	-13.624	-0.672	-17.381	-64.37
HLT	0.523	2.039	7.393	2.409	8.143	6.41
ibm	0.515	-5.13	-6.649	-8.833	-8.459	-0.55
csco	0.42	-0.786	-0.229	-2.261	-3.012	5.82
brcm	0.42	-2.161	2.784	-2.867	-0.033	15.87
dia	0.408	-0.278	-0.346	-1.379	-1.071	-2.33
aapl	0.172	3.904	8.106	4.088	7.565	11.48
oex	0.009	-0.716	-1.074	-1.653	-1.81	-4.25

Hold down the shift key and double click on any column header to reverse sort the table based on the values in that column. In the screen shot below the shift key was held down while the **PriceGain%** column was double clicked. This did a reverse sort of the table according to the highest percentage price gains for that day. In this case **BVSN** was the biggest looser with a fall of 11.525%.

Technical Indicator Analysis

Daily Analysis | Weekly Analysis | Daily Alerts | Weekly Alerts

Symbol	PriceGain%	^EMA13%	^EMA50%	^SMA20%	^SMA50%	^SMA200%
bvsn	-11.525	-9.257	-8.788	-11.782	-17.41	-33.36
sanm	-10.18	-20.292	-27.365	-29.032	-32.904	-37.41
psft	-6.557	-4.494	-3.741	-8.272	-5.908	0.2
LGTO	-4.702	-0.859	14.065	1.565	16.977	27.31
orcl	-3.246	1.667	7.632	4.793	9.214	6.45
mir	-3.09	-13.929	-54.768	-23.446	-66.253	-154.58
hd	-2.063	-3.874	-2.213	-5.838	-3.271	1.48
AOL	-1.927	-7.505	-16.754	-11.505	-20.293	-48.35
u	-1.923	-6.209	-19.97	-11.755	-23.212	-188.50
sunw	-1.761	-7.999	-11.561	-13.351	-15.769	-25.7
rstn	-1.366	-1.319	6.111	-2.557	5.128	18.47
qlgc	-1.262	-5.853	-1.703	-6.976	-4.338	9.75
MSFT	-1.238	-4.044	-3.698	-5.81	-4.88	-1.67
CHIR	-1.213	-0.721	-3.773	-1.108	-3.95	-8.63
pep	-0.968	0.4	1.189	0.822	1.047	5.55
ndx	-0.439	-1.375	-1.361	-3.057	-3.265	-3.56
qqq	-0.282	-1.266	-1.288	-2.947	-3.206	-3.50
FNM	-0.245	0.367	1.642	1.745	2.043	1.
nke	-0.221	2.03	6.298	2.741	6.244	19.26

The **Daily/Weekly Analysis** column headers are defined as follows:

Symbol	The stock symbol
PriceGain%	Percentage price gain (+ for gain, - for loss)
^EMA13%	The percentage that the current closing price is above the 13 day EMA (+ for above EMA and - for below EMA)
^EMA50%	The percentage that the current closing price is above the 50 day EMA (+ for above EMA and - for below EMA)
^SMA20%	The percentage that the current closing price is above the 20 day SMA (+ for above SMA and - for below SMA)
^SMA50%	The percentage that the current closing price is above the 50 day SMA (+ for above SMA and - for below SMA)
^SMA200%	The percentage that the current closing price is above the 200 day SMA (+ for above SMA and - for below SMA)

Vol^SMA%	The percentage that the current volume bar is above its SMA (+ for above SMA and - for below SMA)
HVR	The current HVR value
MACD^Sig%	The percentage that the current MACD value is above the MACD signal line
MACDDur^Sig	The number of days/weeks that the MACD has been above its signal line (+ for above the signal line and - for below the signal line)
MACDDur^0	The number of days/weeks that the MACD has been above the zero line (+ for above the zero line and - for below the zero line)
RSI	The current RSI value
RSIDurOversold	The number of days/weeks that the RSI has been oversold (below 30)
RSIDurOverbought	The number of days/weeks that the RSI has been oversold (above 70)
Stoch	The current Stochastic value
StochDurOversold	The number of days/weeks that the Stochastic has been oversold (below 20)
StochDurOverbought	The number of days/weeks that the Stochastic has been oversold (below 80)
CMF	The current CMF value
CMFDur^20	The number of days/weeks that the CMF has been above 20
CMFDur^10	The number of days/weeks that the CMF has been above 10
CMFDur^0	The number of days/weeks that the CMF has been above 0

The daily/weekly alerts are triggered when the current closing price is above/below its moving averages. An alert is also triggered if the HVR drops below 50% (low volatility - possible big move on the cards). When an alert is triggered the checkbox for the alert will be checked.

The **Daily/Weekly Alert** column headers are defined as follows:

Symbol	The stock symbol
NumAlerts	The number of alerts that have been triggered for a particular stock
HVR Below 50%	An HVR below 50% signifies low volatility and a big move may be in the making
+EMA13	Triggered if the current price closes above the 13 day EMA
+EMA50	Triggered if the current price closes above the 50 day EMA
+SMA20	Triggered if the current price closes above the 20 day SMA
+SMA50	Triggered if the current price closes above the 50 day SMA
+SMA200	Triggered if the current price closes above the 200 day SMA
-EMA13	Triggered if the current price closes below the 13 day EMA
-EMA50	Triggered if the current price closes below the 13 day EMA
-SMA20	Triggered if the current price closes below the 13 day EMA
-SMA50	Triggered if the current price closes below the 13 day EMA
-SMA200	Triggered if the current price closes below the 13 day EMA

Harmonic Pattern Recognition

The HA has the revolutionary and unique capability of being able to analyze the harmonics of a set of stocks. The results of the harmonic analysis are presented in a filterable match list which also allows you to display the matches in the chart window. To learn more about Harmonic Analysis visit the HarmonicTrader.com website: http://www.harmonictrader.com/

Supported Patterns

The following patterns are currently supported by the HA:

- Basic Retracements: 0.382/0.414/0.5/0.618/0.707/0.786/0.886 + user defined levels
- Basic Projections: 1.27/1.618/2.24/2.618/3.14/3.618 + user defined levels
- Various AB=CD's and AB=CD(ab=cd)
- Various Gartley's, Butterflies, Bat's and Crab's which may contain extended AB=CD's e.g. 1.27AB=CD

Currently Unsupported Patterns

The HA does not currently support the Three Drives pattern. There is however no technical reason for not supporting this patterns and support will be added in a future release.

Running The Harmonic Analyzer

Press the Analyze Harmonics button on the HA toobar and the following dialog will appear:

The "**Analyze Harmonics For**" pulldown allows you to select which stocks to analyze. It defaults to "**ALL SYMBOLS**" meaning all stocks that you have data for will be analyzed. You can specify different groups of stocks to analyze by creating stock group files as described HERE.

The "**Show Matches Completing From**" pulldowns allow you to specify the date from which the matches should complete. In this case all matches completing in **1st January 2002** onwards will be displayed. The reason why the date is needed here is because the number of matches can become very large when analyzing the harmonics for a large number of stocks over a long period of price history.

Press the "**Perform New Analysis**" button and the HA will analyze the harmonics of the stock or all stocks you have selected. This may take some time if you are analyzing a lot of stocks. For example, to analyze the harmonics of 70 stocks takes around 15 minutes on a 350MHz PII with 128MB RAM.

The title bar of the dialog will display the status of the analysis as the analysis progresses. At any time during a Harmonic Analysis, you can press the "**Abort Analysis**" button and the HA will abort the current analysis. The "**Abort Analysis**" button may take a little time to respond because the Harmonic Analysis process will be dominating your computers resources.

The "**Load Existing Analysis**" button allows you to load a previous analysis.

Harmonic Pattern Match Dialog

After the harmonics have been analyzed a harmonic match dialog will popup. The dialog consists of 2 tabbed panels. The first panel entitled "**Matches**" contains a scrollable list of all the harmonic pattern matches and the second panel entitled "**Filters**" contains a tabbed panel used for filtering the match list.

The Match List

By default the harmonic pattern matches are listed with the most recent largest matches first (for an alternative match list ordering see the section on Sorting the Match List described HERE). The matches are color coded to show whether they are**bullish** or **bearish**. Each match shows the stock symbol of the match, whether it is a **Daily** or **Weekly** pattern, the **completion date** of the match, the **width** of the match in days and how many of the numbers have been hit in the potential reversal zone (**PRZ). The** text in the dialog can be resized by pressing. The following diagram shows a typical match in the match list and identifies the information that makes up the match text. The significance of these fields will become clearer when the match list filters are discussed HERE.

Harmonic Pattern Matches (1085) Min Match Width: 10 Days Max PRZ Spread: 50% Min # Convergences: 1

Matches | Filters

pep	WEEKLY	8-Feb-02	Bearish	AB=CD(ab=cd)	(0.500/2.000)	Width:	220	BELOW PRZ: 2/2 (AB=CD@53.423
mir	WEEKLY	8-Feb-02	Bullish	ipAB=CD	(0.500/2.000)	Width:	155	ABOVE PRZ: 2/2 (AB=CD@9.010)
aapl	WEEKLY	8-Feb-02	Bearish	ipButterfly	(886,500,1270)	Width:	150	BELOW PRZ: 0/3 (1.27XA@28.0
dhi	WEEKLY	8-Feb-02	Bearish	1.618AB	(1.618)	Width:	150	BELOW PRZ: 1/1 (1.618AB@37.5
dhi	WEEKLY	8-Feb-02	Bearish	pCrab	(618,3.618,1618)	Width:	150	BELOW PRZ: 1/2 (1.618XA@3
dhi	WEEKLY	8-Feb-02	Bearish	pButterfly	(618,618,1270)	Width:	150	ABOVE PRZ: 3/3 (1.27XA@33.2
pep	WEEKLY	8-Feb-02	Bearish	1.618AB	(1.618)	Width:	150	BELOW PRZ: 1/1 (1.618AB@49.8
pep	WEEKLY	8-Feb-02	Bearish	pAB=CD	(0.500/2.000)	Width:	140	BELOW PRZ: 0/2 (AB=CD@53.423
dhi	WEEKLY	8-Feb-02	Bearish	pButterfly	(886,618,1618)	Width:	115	ABOVE PRZ: 3/3 (1.618XA@31.
aapl	WEEKLY	8-Feb-02	Bearish	ipAB=CD	(0.382/2.240)	Width:	105	BELOW PRZ: 0/2 (AB=CD@29.440
AOL	WEEKLY	8-Feb-02	Bullish	1.270AB	(1.270)	Width:	105	ABOVE PRZ: 1/1 (1.270AB@24.2
AOL	WEEKLY	8-Feb-02	Bullish	ipButterfly	(618,500,1270)	Width:	105	ABOVE PRZ: 3/3 (1.27XA@24.2
bvsn	WEEKLY	8-Feb-02	Bullish	0.618AB	(0.618)	Width:	105	ABOVE PRZ: 1/1 (0.618AB@1.93
bvsn	WEEKLY	8-Feb-02	Bullish	Gartley	(447,707,618)	Width:	105	ABOVE PRZ: 3/3 (0.618XA@1.93
CHIR	WEEKLY	8-Feb-02	Bullish	ipButterfly	(886,382,1270)	Width:	105	ABOVE PRZ: 0/3 (1.27XA@35.8
CHIR	WEEKLY	8-Feb-02	Bullish	1.270AB	(1.270)	Width:	105	ABOVE PRZ: 0/1 (1.270AB@35.8
CHIR	WEEKLY	8-Feb-02	Bullish	pButterfly	(886,382,1270)	Width:	105	ABOVE PRZ: 0/3 (1.27XA@35.8
gnss	WEEKLY	8-Feb-02	Bullish	0.618AB	(0.618)	Width:	105	ABOVE PRZ: 0/1 (0.618AB@40.7
gnss	WEEKLY	8-Feb-02	Bullish	iGartley	(382,382,618)	Width:	105	ABOVE PRZ: 0/3 (0.618XA@40.7
snps	WEEKLY	8-Feb-02	Bullish	0.618AB	(0.618)	Width:	105	ABOVE PRZ: 0/1 (0.618AB@45.2
sunw	WEEKLY	8-Feb-02	Bullish	0.786AB	(0.786)	Width:	105	ABOVE PRZ: 0/1 (0.786AB@9.06

Selecting one or more matches from the list for the same stock will result in each match being displayed in the chart.

FNM	DAILY	25-Jan-02	Bullish	AB=CD	(0.786/1.270)	Width:	145	ABOVE PRZ: 0/2 (AB=CD@71.351)(1.
FNM	DAILY	25-Jan-02	Bullish	AB=CD(ab=cd)	(0.786/1.270)	Width:	145	ABOVE PRZ: 0/2 (AB=CD@73.800)(1.
mir	WEEKLY	25-Jan-02	Bullish	ipAB=CD	(0.500/2.000)	Width:	145	ABOVE PRZ: 0/2 (AB=CD@9.010)(2.0
dhi	WEEKLY	25-Jan-02	Bearish	pButterfly	(618,618,1270)	Width:	140	ABOVE PRZ: 3/3 (1.27XA@33.232)(
mir	DAILY	25-Jan-02	Bullish	ipAB=CD	(0.500/2.000)	Width:	135	ABOVE PRZ: 0/2 (AB=CD@9.010)(2.0
mir	WEEKLY	25-Jan-02	Bullish	ipAB=CD	(0.707/1.414)	Width:	130	BELOW PRZ: 2/2 (AB=CD@14.360)(1.
pep	WEEKLY	25-Jan-02	Bearish	pAB=CD	(0.500/2.000)	Width:	130	BELOW PRZ: 0/2 (AB=CD@53.423)(2.
dhi	DAILY	25-Jan-02	Bearish	pButterfly	(618,618,1270)	Width:	128	ABOVE PRZ: 3/3 (1.27XA@33.232)(

The match will be labeled and horizontal lines are drawn at the ideal pattern reversal points B, C and D - these are useful for determining how ideal the pattern is and in identifying the potential reversal zone.

The buttons at the top of the match list dialog turn on/off the labels of the <u>last selected match</u> which is highlighted in yellow in the match list. The button turns on/off the leg projection labeling, the button turns on/off the PRZ labeling and button turns on/off the fib timelines. The effect of these buttons is shown below.

and

The fibonacci time lines are the vertical colored lines drawn in the chart above. These lines are formed by multiplying the number of days between the start of a pattern and its midpoint by the popular fibonacci numbers. Point B on any pattern is considered the midpoint. For example, if there are 20 days between the start of the pattern and the midpoint then the 0.382 fib timeline will be 20 * 0.382 = 7.64 days after B. If the stock is close to completing in the PRZ and it is close to a fibonacci time line then this is considered to be a significant harmonic confirmation. In the screenshot above the stock reversed out of the PRZ very close to the 0.5 fibonacci time line (red).

A match is prefixed with an 'i' e.g. **iAB=CD**, if the numbers in the potential reversal zone (**PRZ**) are in the ideal order for that pattern. A match is prefixed with a '**p**' e.g. **pGartley**, if the reversal points (B and C) occurred very near the perfect reversal levels. In theory an **ipGartley** match should be a better match than a simple **Gartley** match. **However, visual inspection is essential to determine the validity of any match.**

Sorting the Match List

By default the harmonic pattern matches are listed with the most recent largest matches first. An example match list is shown below.

Pressing the sort button on the match list will sort the list by symbol name, then date and then match size. You will see from the screenshot below this makes finding convergences easier.

If you press the sort button again the match list will go back to be being sorted by date and then match size.

Displaying Harmonic Matches

To the left of each match is a checkbox. Initially all the match checkboxes are deselected. By selecting a checkbox the price data for that stock will be loaded, the chart will be displayed as either **daily** or **weekly (depends** on the match type) and the match will be displayed in the chart window. Even with the match dialog open, you are free to use the full features of the Harmonic Analyzer to look at the chart and technical indicators e.g. zoom in/out or scroll around the chart.

If a checkbox for a different stock is selected, the previous checkbox will be deselected and the chart for the newly selected stock will be loaded and that match will be displayed.

If you select a checkbox for the same stock but for a different time scale e.g. **DAILY** instead of WEEKLY then the previous checkbox will be deselected and the chart window will switch to displaying the DAILY/WEEKLY chart for that match.

The true power of this dialog becomes apparent when you select multiple checkboxes for the same stock and time scale e.g. all selected checkboxes are for the same stock and represent DAILY matches. In this case all matches will be displayed in the chart window at the same time. Scott Carney says that multiple

pattern matches converging in the same harmonic area are very significant and this feature allows you to see what the combined **PRZ for** all these matches looks like.

On the main HA toolbar, you can press the button to show/hide the harmonic patterns displayed in the chart window.

It is important that you visually inspect all harmonic matches to gauge their validity and to watch the price action in the PRZ. Just because the HA has found a bullish Gartley does not mean that the Gartley is valid and that the price will reverse.

Filtering the Match List

Selecting the "**Filters**" tab on the **Match List** dialog will reveal a range of filters which can be used to reduce the number of matches displayed in the match list. The filters allow you to specify the characteristics of the patterns that you are interested in and this will filter out the patterns that do not have those characteristics.

The following diagram shows a typical match in the match list and identifies the information that makes up the match text. Each match list filter will filter the match list based on the value of one of these fields of information.

Symbol Filter

When you run a harmonic analysis on multiple stocks it can sometimes be helpful to concentrate on the matches for a specific stock within the match list rather than looking at matches for all stocks at the same time. The stock symbol name is highlighted in the sample match list shown below.

If you select the "**Symbol**" filter tab you will be able to specify the stock symbol name on which the match list should be filtered on. The symbol name defaults to **ALL SYMBOLS** and this means matches for all stocks will be displayed in the list. By selecting an individual stock symbol from the drop down symbol list the match list will be filtered and only show matches for this stock (refer to the HA Symbol Chooser section for more information on how to use the symbol list/Find text box).

Timescale Filter

Depending on your trading style, you may prefer to trade short term swings or take more longer term position trades. By default the match list displays DAILY and WEEKLY matches together as shown below.

The **Timescale** filter tab allows you to filter the match list to show **DAILY** and/or **WEEKLY** matches. For short term swing trades you could check the **DAILY** checkbox and uncheck the **WEEKLY** checkbox. For longer term position trades you could uncheck the **DAILY** checkbox and check the **WEEKLY** checkbox. Once you have checked/unchecked the checkboxes press the "**Apply Filter**" button to refilter the match list.

WEEKLY matches typically mark major harmonic support/resistance levels. It is important to consider the direction of the **WEEKLY** move when looking at **DAILY** matches since the **DAILY** matches may be a counter trend move in a larger **WEEKLY** move.

Bullish/Bearish Filter

The "**Bullish/Bearish**" filter allows you to filter the list to show bearish and/or bullish patterns.

If you are only interested in trading long positions then you may filter the list to just show bullish matches. However, be wary that the bullish match may be part of a larger bearish move or a bearish pattern may form once you have executed this long trade. Once you have set the checkboxes appropriately, press the "**Apply Filter**" button to refilter the match list.

Match Type Filter

The "**Match Type**" filter allows you to filter the match listed based on the type of pattern that you are interested in looking for. For greater flexibility, each type of pattern has a number of variations that can be selected. For example, this allows you to either filter for all variations of Gartley (by checking all the Gartley checkboxes) or filtering for very specific Gartley's e.g. where B(0.618), AB=CD(0.618/1.618), D(0.786). Once you have set the checkboxes appropriately, press the "**Apply Filter**" button to refilter the match list.

The most frequently occurring matches are those for retracements/projections and these are the basic building blocks of AB=CD's, Gartley's etc etc. Once the initial match list has been displayed you may find it beneficial to temporarily uncheck all the retracement/projection checkboxes and refilter the match list to just show AB=CD's, Gartley's etc etc. If you find a match that looks interesting you can recheck the retracement/projection checkboxes to see if any of those compliment the pattern that you are interested in.

Min Match Width Filter

The "**Min Match Width**" filter allows you to specify the minimum width in days for a pattern to be listed in the match list. Note: the match widths are shown in days for **DAILY** and **WEEKLY** matches and are measured from the start to the end of the pattern.

Depending on your trading style, you may prefer to trade short term swings or take more longer term position trades. Patterns suitable for short term swing trades will typically have smaller match widths than those suitable for longer term position trades. Slide the slider until the appropriate minimum number of days is selected and then press the "**Apply Filter**" button to refilter the match list.

Max % PRZ Spread Filter

The "**Max % PRZ Spread**" filter allows you to specify how "tight" the numbers in a patterns PRZ the harmonic numbers should be. If the numbers in the PRZ are very close to one another then the % PRZ spread will be low whereas if the numbers in the PRZ are spread apart then the % PRZ spread will be high. The "tightness" of the numbers in the PRZ is a good indicator of how good a match the match is. Patterns with good price/time symmetry typically have tight PRZ's.

The "**Max % PRZ Spread**" filter defaults to 50% so that all matches are listed in the match list. Reducing the maximum down to say 5% and pressing the "**Apply Filter**" button will result in a match list where all the matches listed have tight PRZ's.

PRZ Filter

The "**PRZ**" filter allows you to filter the match list based on the number of numbers that have been "tested" in the PRZ and where the current price is relative to the PRZ. Typical PRZ information is shown in the example match list below:

The "**PRZ Completeness**" filters refer to how many numbers have been "tested" in the PRZ for particular patterns. For a bullish pattern, a number in the PRZ is said to have been tested if a low for a price bar has touched or dropped below that number. For a bearish pattern, a number in the PRZ is said to have been tested if a high for a price bar has touched or moved above that number.

0/1 and 1/1

Retracements/Projections have just 1 number in the PRZ which is simply the retracement/projection level e.g. 0.618. So for a bullish retracement/projection, the PRZ label in the match list will say 1/1 if the price bar low has touched or dropped below this level or 0/1 if it has not.

0/2, ½ and 2/2

AB=CD's and Crab's have 2 numbers in the PRZ i.e. the AB=CD point and the projection of the BC leg e.g. 1.618BC. For a bullish AB=CD the PRZ label in the match list will say 0/2 if the price bar low has not yet touched or dropped below the AB=CD or BC projection. The label will say ½ if the price bar low has

touched or dropped below the AB=CD or BC projection. Finally the label will say 2/2 if the price bar low has touched or dropped below the AB=CD and the BC projection.

0/3, 1/3, 2/3 and 3/3

Gartley's, Butterflies, Bat's and Crab's have 3 numbers in the PRZ i.e. the AB=CD point, the projection of the BC leg e.g. 1.618BC and the XA projection e.g. 0.786XA. For a bullish Gartley/Butterfly/Bat/Crab the PRZ label in the match list will say 0/3 if the price bar low has not yet touched or dropped below the AB=CD, BC or XA projection. The label will say 1/3 if the price bar low has touched or dropped below either the AB=CD or the BC projection or the XA projection. The label will say 2/3 if the price bar low has touched or dropped below 2 of the 3 numbers in the PRZ. Finally the label will say 3/3 if the price bar low has touched or dropped below the AB=CD, BC projection and the XA projection.

Examples

The following diagram illustrates the PRZ completeness numbers for a bullish pattern that has 3 numbers in its PRZ e.g. a Gartley/Butterfly/Bat/Crab. As the stock declines into the PRZ it will hit the PRZ numbers and the PRZ labeling will reflect how many numbers have been hit i.e. 0/3 ... 3/3.

The following diagram illustrates the PRZ completeness numbers for a bearish pattern that has 3 numbers in its PRZ e.g. a Gartley/Butterfly/Bat/Crab. As the stock advances into the PRZ it will hit the PRZ numbers and the labeling will reflect how many numbers have been hit i.e. 0/3 ... 3/3.

ABOVE PRZ, BELOW PRZ and IN PRZ

The "**ABOVE/BELOW/IN PRZ**" filters simply refer to where the **current price** is relative to the PRZ of the pattern. This information is only relevant to the most recent patterns where the date of the current price is close in time to the pattern completion date. If the PRZ for a bullish pattern shows 3/3 of the numbers have been tested in the PRZ and the current price is ABOVE PRZ then you can deduce that the stock has reversed off the PRZ and is currently still above the PRZ. However, it is still wise to manually to view the match to confirm this. If you run a scan and look for patterns that have recently completed and have tested all the numbers in the PRZ and the current prize has not crashed through the PRZ then there may still be time to go long or short the stock if the pattern is still valid.

Min # Convergences Filter

A pattern is said to converge with another pattern if both patterns are for the **same stock** and have the **same match date** in the match list. The greater the number of convergences the more harmonic the area ... In the partial screenshot of a match list for **AMAT** shown below, you will see that **AMAT** has 7 converging bearish **WEEKLY** matches on the 11-Jan-02 and 8 converging bearish **DAILY** matches on the 9-Jan-02.

AMAT	WEEKLY	11-Jan-02	Bearish	0.618AB	(0.618)	Width:	195	BELOW PRZ: 1/1
AMAT	WEEKLY	11-Jan-02	Bearish	iGartley	(618,382,786)	Width:	195	BELOW PRZ: 0/3
AMAT	WEEKLY	11-Jan-02	Bearish	0.886AB	(0.886)	Width:	120	BELOW PRZ: 1/1
AMAT	WEEKLY	11-Jan-02	Bearish	ipAB=CD	(0.382/2.240)	Width:	75	BELOW PRZ: 0/2
AMAT	WEEKLY	11-Jan-02	Bearish	ipAB=CD	(0.500/2.000)	Width:	65	BELOW PRZ: 0/2
AMAT	WEEKLY	11-Jan-02	Bearish	pAB=CD	(0.707/1.414)	Width:	40	BELOW PRZ: 0/2
AMAT	WEEKLY	11-Jan-02	Bearish	1.270AB	(1.270)	Width:	30	BELOW PRZ: 0/1
AMAT	DAILY	9-Jan-02	Bearish	0.618AB	(0.618)	Width:	179	BELOW PRZ: 1/1
AMAT	DAILY	9-Jan-02	Bearish	iGartley	(618,382,786)	Width:	179	BELOW PRZ: 0/3
AMAT	DAILY	9-Jan-02	Bearish	0.886AB	(0.886)	Width:	107	BELOW PRZ: 1/1
AMAT	DAILY	9-Jan-02	Bearish	ipAB=CD	(0.382/2.240)	Width:	68	BELOW PRZ: 0/2
AMAT	DAILY	9-Jan-02	Bearish	ipAB=CD	(0.500/2.000)	Width:	56	BELOW PRZ: 0/2
AMAT	DAILY	9-Jan-02	Bearish	pAB=CD	(0.707/1.414)	Width:	33	BELOW PRZ: 0/2
AMAT	DAILY	9-Jan-02	Bearish	1.270AB	(1.270)	Width:	24	BELOW PRZ: 0/1
AMAT	DAILY	9-Jan-02	Bearish	1.618AB	(1.618)	Width:	15	BELOW PRZ: 1/1

If a match in the list converges with another in the list then a colored square is drawn next to the match to make the convergence easier to identify. Above you will clearly see the 7 green boxes and the 8 brown boxes. If you have analyzed a lot of stocks in a scan then, it may be difficult to distinguish these colored boxes from one another and you may find it beneficial to filter the match list on each individual symbol in the list by using the Symbol filter.

The "**Min # Convergences**" filter allows you to specify the minimum number of convergences a pattern should have. Slide the slider until the appropriate minimum number of convergences is selected and then press the "**Apply Filter**" button to refilter the match list.

Saving the Match List

The save button at the top of the match list dialog allows you to save the entire "state" of the match dialog (the "state" of the dialog includes the match list, your filter settings and any selected matches). Enter a file name in the "**File name**" text field and press the **Save button**.

The match dialog can be reloaded by pressing the "**Load Existing Analysis**" button on the initial harmonic analysis dialog.

How To Use the Match List

Run the HA each day after updating the price data for the stocks that you follow. When the analysis is complete and the dialog appears, scan down the top of the list looking at the patterns that complete at the end of the last trading day. Start by turning off the basic retracements and projections matches in the match filter so to concentrate on **AB=CD**, **Gartley**, **Bats**, **Crabs** and **Butterfly** patterns. Look at the **match widths looking** for any matches greater than say 15+ days (A filter button to allow you to specify the min match width will be added in a later release). If you find one for a particular stock, click on the **Symbol** tab in the filter and select that stocks symbol to show only the matches for that stock. Then turn back on the retracement and projection matches and start looking for multiple convergences of patterns (look for patterns with the same date).

Pre-scan Settings

By default the HA will scan for all types of retracement, projection, AB=CD, Gartley, Bat, Butterfly and Crab pattern. This can take a lot of time if you are analyzing a lot of stocks and/or looking for matches that completed weeks/months/years ago. Additionally, you may find that only a subset of the match types work best for your style of trading. To reduce the analysis time and/or perform a more targeted scan, the HA can be configured to scan for a subset of all the patterns. This subset may also represent the match types that work best for your style of trading.

The Harmonic Analyzer dialog has a "**Settings ...**" button (as can be seen from the screenshot below).

If you press the "**Settings ...**" button the Harmonic Analyzer Settings dialog will appear. This dialog contains filters that are almost identical to the filters for the match list. By setting up the filters on this dialog you are telling the HA what to scan for.

The Harmonic Analyzer Settings dialog has a two extra settings that are not present on the match list filters namely the Max # Matches filter and the Retracement Level Settings button (next to the Select All/Deselect All buttons).

The purpose of the Max # Matches filter is to keep the match list size under control. The match list can grow very large if you are scanning a lot of stocks and/or looking for matches that completed weeks/months/years ago. Depending on your PC's memory size, the match list can grow to the point where

your PC runs out of memory. By default the Max # Matches is set to 5000. If the HA reports an out of memory error after an analysis, amongst other things it will suggest that you reduce this setting.

Pressing the Retracement Level Settings button will result in the Define Retracement Levels dialog appearing. This dialog allows you to specify additional retracement/projection levels to scan for. It is recommended that you add levels to this list but do not remove any. Once you have made your additions press the OK button. When you click on the Match Type tab and look at the retracement/projection level checkboxes you will see your additional levels listed there too.

Defining Stock Groups

A stock group is simply a text file containing a list of stocks that you wish to analyze or download data for. You can create as many stock groups that you wish and a stock can appear in more than one group. Stocks in a group may be related by sector or any other relationship that you require. The stock group text files can be created using Windows **Notepad** or any other text editor. You will find Windows Notepad by pressing the Windows Start button (lower left hand corner of your screen). From the resulting menu select "**Programs**" and then from the sub-menu select "**Accessories**". You should then see **Notepad in** the resulting menu.

- Each file needs to be given a name in the following format: '**groupName.grp**'. e.g. **semis.grp, bios.grp, banks.grp, software.grp** etc etc. The **.grp file** extension is essential for the HA to recognize it as a file containing a group of stocks.
- Each file should contain a list of the stock symbols in that group. One stock symbol on each line. For example, you might create **semis.grp like** this:

INTC
XLNX
MOT
LSI
ALTR

- When adding symbols to these files make sure you type the symbol name correctly and that you have downloaded data for that symbol. Also when saving the file in Notepad make sure you don't accidentally save the file with a .txt extension e.g semis.txt or semis.grp.txt
- These files need to be placed in your **haData folder**.
- To find out where your **haData folder** is you can load a chart into the HA and look at the title of the HA window. On a single user Win98 PC it will say something like C:\Windows\haData\csco.ta This means your haData folder is **C:\Windows\haData**. Copy all your group files into that folder.
- Now when you press the load chart button or Analyze Harmonics button and press on the symbol list the groups will be listed along with all the other stocks:

ALL SYMBOLS
GROUP: banks
GROUP: bios
GROUP: eda
GROUP: semis
altr
csco
dd
ibm
orcl

- If you select a group from the list then all the stocks in that group will be analyzed.
- An added bonus of this scheme comes in the Data Downloader in that you can specify a group of stocks that you currently don't have any data for. If you select the "**Update Existing Data For**" option and select the group from the list it will download the data for all these stocks. This saves you the trouble of entering them one by one in the "**Download New Price Data For:**" field.
- You can delete old groups from the **haData** folder and the HA will no longer list these groups in the list of symbols.

Command Summary

The following list summarizes the HA commands and how they are invoked via toolbar buttons, keyboard accelerators or menu mnuemonics.

IMPORTANT: Make sure you click the mouse in the HA window before typing any of these commands otherwise the command will go to the web browser instead and a web browser dialog will most likely popup.

Command	ToolBar Button	Keyboard Accelerator	Menu Mnuemonic
Open Chart		CTRL-O	ALT-F O
Save Chart		CTRL-S	ALT-F S
Print Chart		CTRL-P	ALT-F P
Zoom In		SHIFT-I	ALT-Z I
Zoom Out		SHIFT-O	ALT-Z O
Zoom Reset		SHIFT-R	ALT-Z R
Auto Scale		-	-
Scale Up		-	-
Scale Down		-	-
Scroll To Most Recent Price Action		-	ALT-V L
Normal Mode		-	-
Trendline Mode		-	-
Increase Line Thickness		-	-
Dashed Line		-	-
Add Text		-	-
Resize Text		-	-
Set Color		-	-
Delete Selection		-	-
Show/Hide Trendlines		CTRL-T	ALT-V T
Show/Hide Retracement Lines		CTRL-R	ALT-V R
Show/Hide Harmonic Patterns		CTRL-H	ALT-V H
Show/Hide Grid		-	ALT-V A
Show/Hide Price Up/Down Gaps		CTRL-G	ALT-V G
Download Price Data		-	ALT-T D
Analyze Technical Indicators	TA	-	ALT-T T
Analyze Harmonics		-	ALT-T H
Delete last drawn trendline	-	CTRL-U	-

Retracement Command	ToolBar Button	Keyboard Accelerator	Menu Mnuemonic
Mark the begining of a price move	-	CTRL-B	-
Mark the end of a price move (retracement lines will appear)	-	CTRL-E	-
Progressively Shorten Retracement Lines	-	CTRL-,	-
Progressively Lengthen Retracement Lines	-	CTRL-.	-

Chart Command	ToolBar Button	Keyboard Accelerator	Menu Mnuemonic
Switch To Daily Chart	Daily Weekly	SHIFT-D	ALT-V D
Switch To Weekly Chart	Daily Weekly	SHIFT-W	ALT-V W
Scroll To Volume Chart	Volume(60)	SHIFT-V	ALT-I V
Scroll To Stochastic Chart	Fast Stochastic(14-3)	SHIFT-S	ALT-I S
Scroll To RSI Chart	RSI(14)	SHIFT-R	ALT-I R
Scroll To MACD Chart	MACD(12-26-9) -0.61	SHIFT-M	ALT-I M
Scroll To MACD Histogram Chart	MACD Hist(26-12-9)	SHIFT-H	ALT-I H
Scroll To CMF Chart	CMF(21)	SHIFT-C	ALT-I C
Set Indicator Parameters	Settings	-	ALT-I E

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