ReTreeval

Introduction

ReTreeval is an easy to use application that combines a database and a decision tree program. To search the database, all you have to do is answer questions in natural English asked by ReTreeval. The amount of information stored about each item grows with your needs, and ReTreeval learns with you asking questions in an easily understood language.

Unlike binary tree programs where each question requires a Yes or No answer, Is it red? Yes / No, Is it blue? Yes / No, ReTreeval will ask, "What colour is it?" The answer can be entered from the keyboard, by typing the first few letters, or selected from a menu by using the mouse.

In conventional flat file databases we use the analogy of a card index where each card is called a record and within it we define fields to describe our record. In ReTreeval we shall call each entry a data Item and give it particular Properties which describe that item. For example the database may be on Fruit and one of the items may be a Lemon. A property of a fruit is its Colour, we say the Colour of a Lemon is Yellow. Although this is different from conventional databases, it is more like the way we think and describe items that we see in real life.

ReTreeval insists that all items have a unique description. No two items can have exactly the same properties. If so, ReTreeval will ask for a new property to differentiate between the two.

The features that ReTreeval offers are as follows:

• Uses natural language to ask questions when inputting data

• Data can be entered quickly, and consistently using drop down lists.

• The whole database can be restructured just by pointing, clicking and dragging on the tree.

• Properties can be dependent on the value of other properties.

• The decision tree can be printed across a number of pages to create a large wall display or saved out as an Apple Pict file.

• Flat file approach for browsing, searching and editing data.

System Requirements

- Apple Macintosh running Mac OS 10.2 or higher.

Installing ReTreeval

ReTreeval must be installed onto the hard disc in the computer.

Installing the software onto the hard disc

1 Insert the CD ROM into the CD ROM drive.

2 If you are using Mac OS X ensure you are logged on to the machine as an administrator.

3 Drag the appropriate folder to your hard drive.

For Mac OS 8 and 9 you should use the folder labelled **ReTreeval (Classic)** and for Mac OS X copy the folder labelled **ReTreeval (OS X).**

You can place the folders wherever you wish on your system, but we would recommend you put them in the **Applications** folder.

Registering Your Software

1 Double click the ReTreeval icon in order to run the program.

The first time that you run ReTreeval you will be asked to enter your licence details. If you do not do this ReTreeval will run only in demonstration mode. When used in this state the application will not let you save files, print or copy to the clipboard.

2 Enter your details and the serial number in the appropriate fields on the start up screen.

Your serial number can be found with your licence details supplied with the software.

3 Click on the **Register** button to complete the registration process.

Starting ReTreeval

ReTreeval should be installed to the hard disc of you computer. Follow the installation instructions supplied with the distribution media. An alias will be added to the desktop on your computer.

- Double click on the ReTreeval alias.

  ReTreeval's start up banner will be displayed on screen for a few moments, followed by the main editing window.

  ReTreeval communicates to the user through this window:
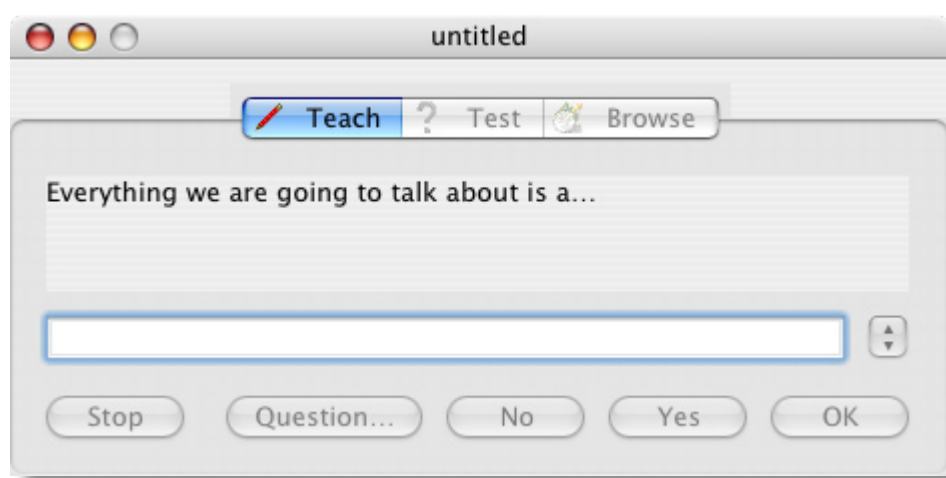
Finishing with ReTreeval

To quit ReTreeval:

- Open the **ReTreeval** application menu and choose the item **Quit**.

Or;

- Click on the close window button in the top left hand corner of the main ReTreeval window.

  If you have not saved your work, a dialogue box will appear.

- Select the appropriate option.

Creating Your Own Database

ReTreeval works in three modes, **Teach**, **Test** and **Browse**. When ReTreeval starts it is automatically in the Teach mode. If you load one of the example files, e.g. Fruit or Mammals, then you can use the **Test** mode straightaway.

If you are starting a database from scratch you have to tell ReTreeval the subject of the database, for example Fruit. Typically these are the types of items that you will be *talking* about.

- Enter the subject of the database into the writable field and click OK.

  ReTreeval will now ask whether each item has a proper name. This determines the way ReTreeval phrases its questions, it does not affect the database in any other way.

  Items that have proper names are unique, for example; a person has a proper name, as does a place or a football team, but items such as fruit, trees, animals and minibeasts do not.

You may either:

- Type in the answer **Yes** / **No**

Or

- Click on the **Yes** / **No** buttons.

  These settings can be changed later in the **Settings** dialogue box.

ReTreeval will now ask you **What is the name of the new item?** You cannot *Stop* this process until you have entered at least two items. This is because ReTreeval requires at least one property to be defined before the database can be saved or used intelligently. It is meaningless to only have one item and no defined property.

- Enter the name of the first item and press ENTER
- Enter the name of the second item and press ENTER

  ReTreeval will now ask **What can I use to tell** 'item 1' **from** 'item 2'

  The default prompt will read: **What .... is it?**

If for example you decide that Colour is an appropriate way of telling the difference between item 1 and item 2 then the question should read, **What *Colour* is it?**

You may decide that this question is not appropriately worded, in which case, if you click on the button labelled **Question...** the Question dialogue box will open, allowing you to choose from a range of different types of questions.

- Select a question from the dialogue box and click on the **OK** button.
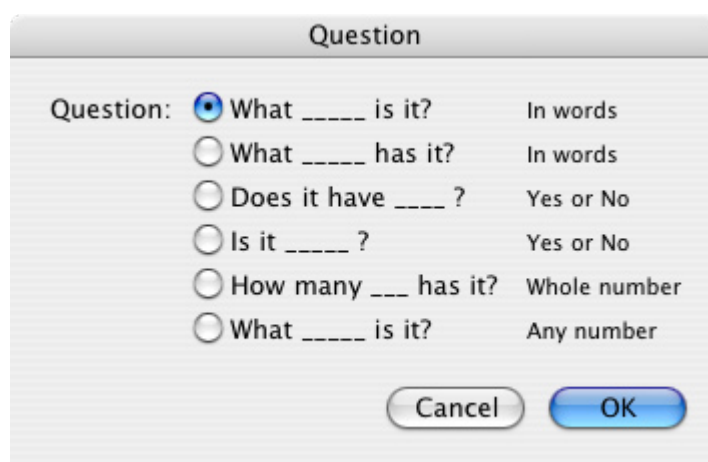
If you choose to use the **What _____ is it?** or the **What _____ has it?** type of questions, then the answer to the question, (or *value* of the property), can be text.

The questions **Does it have _____?** and **Is it _____?** require a Yes or No answer. You cannot give any other type of answer to these questions.

The questions **How many _____ has it?** and **What _____ is it?** require numerical answers.

The answer to the first question must be a whole number, for example: **How many legs has it?** The second question can take any number, for example: What height is it?

Once you have chosen a suitable question then ReTreeval will ask you to enter the values for the two items you have just entered.

- Enter the values for the two items.

    You have now entered your first two items into ReTreeval. ReTreeval will now ask you to enter another new item.

However, it is possible not to enter any items at all if you wish and to just define the questions that will be used later. In this way the teacher can setup a template for the children who can then later answer some predefined questions for their collected data, see page 24.

You can now save your database as a ReTreeval file if you wish.

Saving Files

• Open the **File** menu and choose the item **Save As**...

   The Save As window will open as shown:
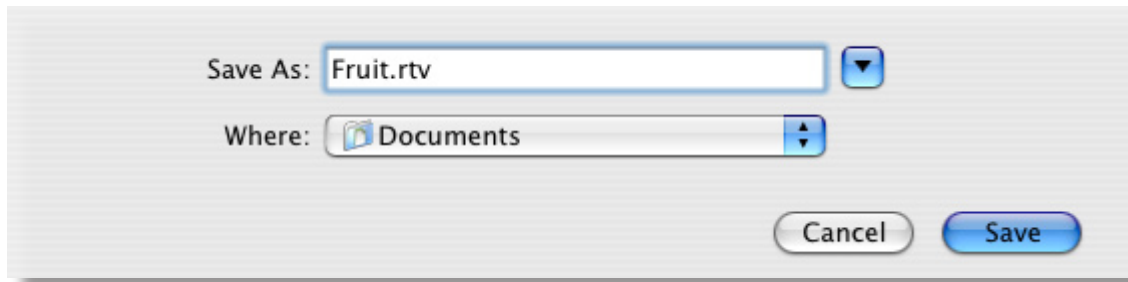
• Type in your own file name in the writable field labelled **Save As:** and click on the **Save** button.

Continue to enter the data for your chosen database. Each time you enter a data item ReTreeval will ensure that it has a unique feature that differentiates it against all others in the database. If ReTreeval finds it can not differentiate between two data items it will automatically prompt you to choose another question in order to do so.

Once you have finished entering all of the data you can begin to use the various features offered by ReTreeval.

Viewing the Database as a Tree Diagram

The whole of your ReTreeval database can be viewed as a Tree diagram. The diagram below uses the Fruits example file. Once the file has been loaded;

• Open the View menu and choose the item Tree.

   The Tree window will open as shown:
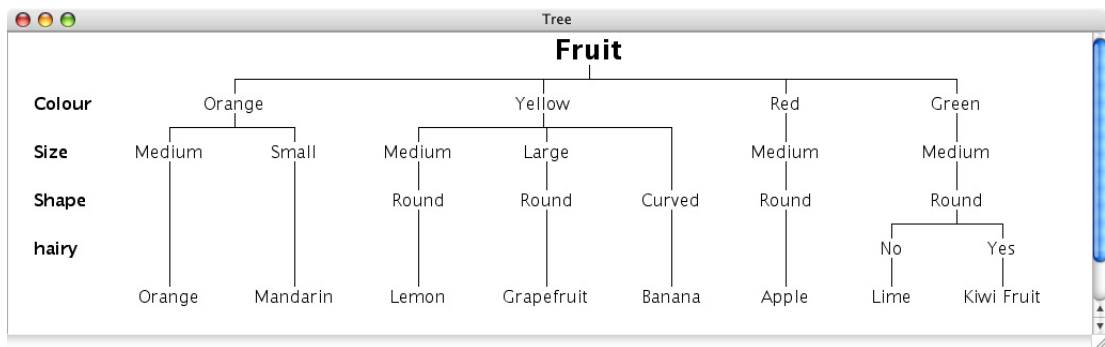
The tree diagram gives a visual representation of the database.

Tree Diagram Settings

- Hold down the CTRL key whilst the mouse pointer is in the tree window and click the mouse button.
- Choose **Settings...** from the pop-up menu.

  The File Settings dialogue will open and the **Tree** tab will be selected.
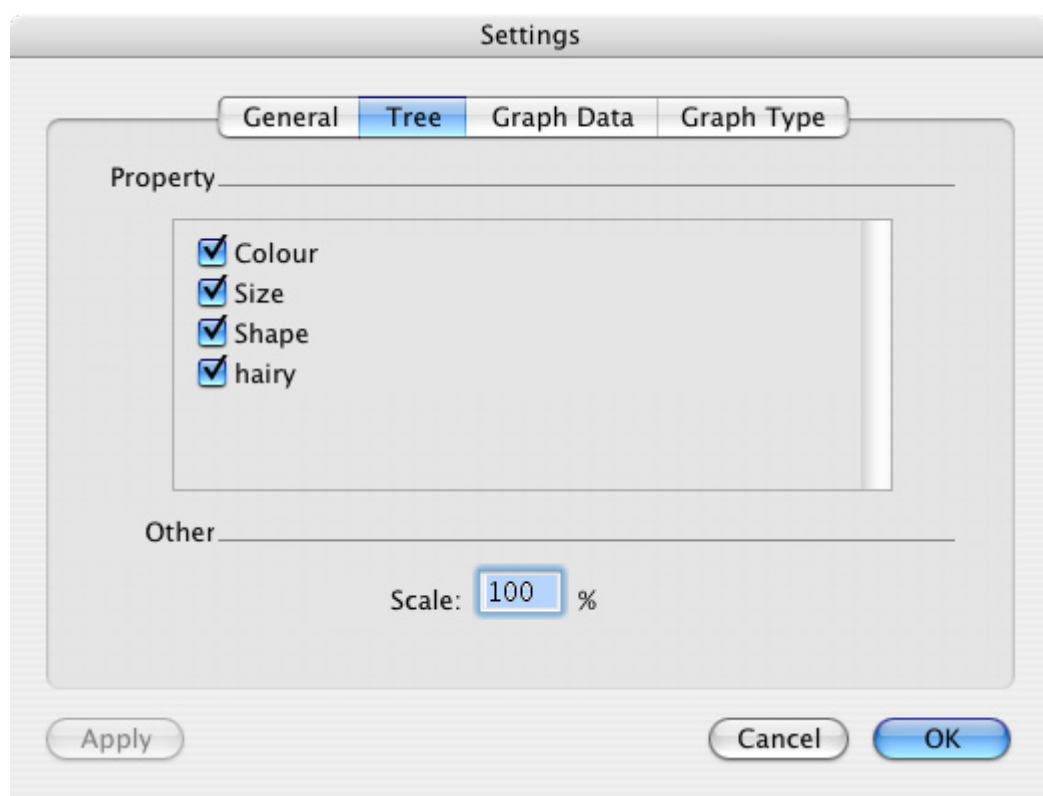

The properties which are currently displayed will have a switch to indicate whether they are on or off. By default they are all turned on. As the number of properties grows so this box also grows with the database. In the above diagram the properties displayed are that for the **Fruit** database.

- Switch off the items **Colour** and **Size**.
- Click on the **Apply** button to confirm the settings, or **OK** to confirm the settings and close the dialogue box.

The tree will now be redrawn showing all the fruits in their respective groups by **Shape**. You will notice that the items Orange and Mandarin are in a group where the shape has not been given. This does not matter at the moment because they are still uniquely defined by their other properties. You can set the **Shape** of the fruits if you wish, by using the **Browse** window, see page 14 for more details.

Clicking on the check box on the left hand side of each property will toggle its selection. When you uncheck a property it will be temporarily removed from the tree diagram. This does not affect the database in any way, it only affects the display of the tree diagram.

Tree display

You can also choose which fonts to use in the tree diagram.
To change the font:

• Click on the **General** tab in the **File Settings** dialogue:
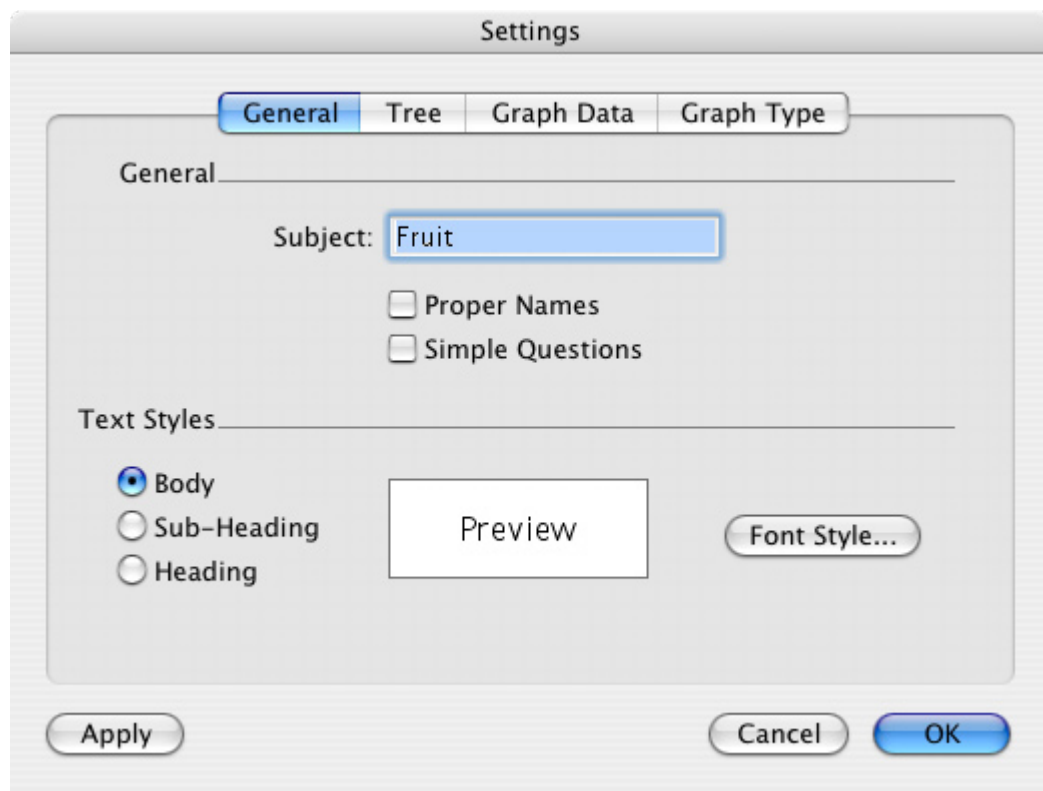
ReTreeval uses three different Text Styles;

Body text – this is the text that is displayed in the main part of the tree diagram.

Sub-heading – this is the text which denotes the properties of the data items and is displayed down the left hand side of the tree diagram.

Heading text – this is the text used for the title of the tree diagram and also for the title of the graph.

To change any of the text styles:

• Click on the **Font Style...** button to the right of the style you wish to change.

The Font Style window will open and from here you can select the type of font you wish to use, its size, style, colour. When you have made your choice click on the **Apply** button and the changes will appear in the diagrams.

Changing the Structure of the Database

The tree diagram displays the structure of the database. Each item in the database is uniquely defined by the values of its properties. In the fruit database this is by **Colour**, then by **Size** and finally by **Shape**.

One of the powerful features of ReTreeval is the ease in which the whole database can be restructured. In the Fruits database, the user may decide that in order to differentiate between the items in a more meaningful way, it might have been better to place the 'shape' of the fruit higher up the tree than the size.

Lets see this in action:

- Open the example file **Fruits** provided with ReTreeval.
- Open the tree diagram by choosing **Tree** from the **View** menu.
- Move the mouse pointer anywhere along the line of the **Shape** property, click and hold down the mouse button.

  The **Shape** property will become highlighted, you can 'drag' this item up and down the tree diagram.

- Drag the item to the gap between **Colour** and **Size**.
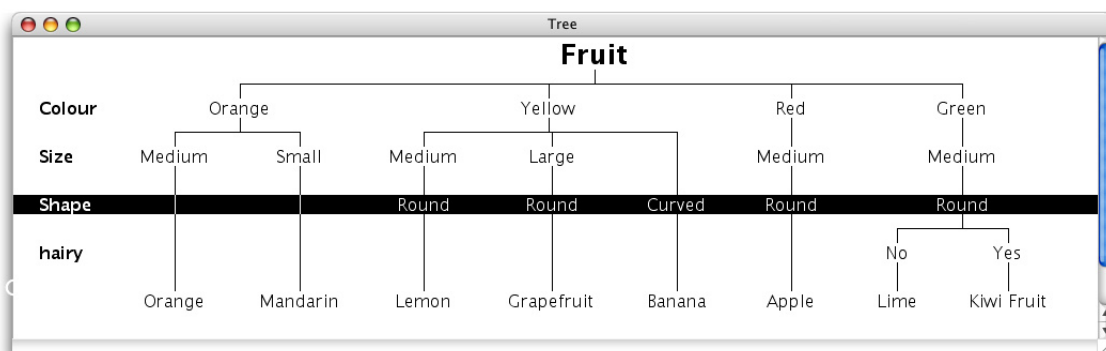
    The whole of the tree will now be redrawn displaying a different structure.

- Try experimenting by moving other properties up and down the tree.

Test Mode

By clicking on the **Test** tab we can test ReTreeval to see whether it knows about a particular item. When you click on **Test** tab, ReTreeval will ask you a number of questions to see if it knows about the item you are describing.

Let's try this with the **Fruit** database.

- Load the **Fruit** database and open the **Tree** diagram.

- Click on the **Test** tab.

  You will notice that the tree will be coloured with green and yellow blocks. These demonstrate how ReTreeval is searching for your item.

  Let's think of the Orange.

  ReTreeval is asking, **What is the Colour of the Fruit?**

- Answer this by selecting the colour **Orange** from the drop down menu, and click **OK**.

  Next ReTreeval will ask you the size of the fruit

- Answer this by selecting the size **Medium** from the drop down menu.

  Next ReTreeval will ask, **What is the shape of the fruit?** This may seem a bit strange as ReTreeval doesn't know at this stage the shape of any of the orange coloured fruits, so is there any point in asking the is question? We'll see…

- Answer this by selecting **Round** from the drop down menu.

  Next ReTreeval will ask you, **Is it hairy?**

- Answer this as **No**.

Finally, ReTreeval will ask you **Is the Fruit an Orange?**

- Click on the **Yes** button to confirm that it is an orange.

  As you do so, note that the shape of the Orange is now set to **Round**, this is because although we were *testing* ReTreeval it has still learned that the fruit was round from the answers that we gave to its questions. This behaviour can be changed in a setting called **Simple Questions**. This is in the **General** tab in the **File Settings** dialogue.

Simple Questions

When this switch is turned on ReTreeval acts slightly differently when in Test mode. One difference is that once you have answered enough questions ReTreeval will state that **This Fruit is a Lime** rather than asking **Is this Fruit a Lime?** Under simple questions, ReTreeval does not learn from you so you cannot add or edit the database when testing ReTreeval. With simple questions turned off; ReTreeval can be a bit sneaky by asking you questions for which it does not know the answers but will add these values into the database once you have confirmed the name of the item.

Creating a Subset

Create Subset allows you to create a subset of the items in the database. Initially, you might find it helpful to display all the properties in the tree diagram. The example below uses the **Fruit** database.

- Open the **Edit** menu and choose the item **Create Subset...**

    If this item is greyed out then click on the **Stop** button in the main window.

    The Create Subset dialogue will open:
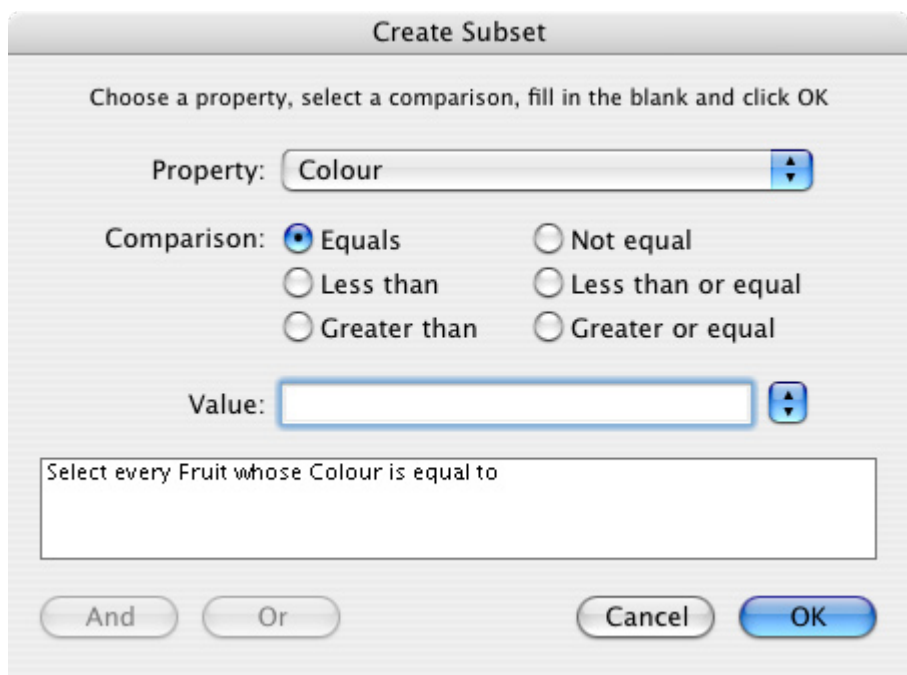
To help you set up the search criteria the drop down lists will open for the properties and their values. Using the **Fruits** database as before let's search for every fruit whose **Colour** is **Yellow**.

First you need to choose the property you wish to search on:

- Using the mouse, choose the **Property** from the drop down list.

    In the **Fruit** database we will choose the property **Colour**.

- Next you need to select an 'operand' for the property and value, these are:

    Equals or **Not equal**

    Less than or **Less than or equal**

    Greater than or **Greater or equal**

    These operands can be used for both numeric and textual data. If the values are textual then the less than and greater than criteria are used alphabetically. For example an Apple is alphabetically *smaller* than a Banana, because A comes before B in the alphabet.

- In our example, we will select **Equals**

- Next you need to choose a value to match, in our example choose the item

Yellow from the drop down list labelled **Value**.

At this stage you can choose to extend the search by adding an **AND** or an **OR** criteria to the search, we will not do this in this example.

- Click on the **OK** button. The search criteria is now complete and it should read, **Select every Fruit whose Colour is Yellow.**

- Click on **OK** to use this search criteria.

If you now look at the tree diagram you will only see those fruits which are yellow. The **Browse** window will also open so that you can browse through the database and view those items that have been found. Clicking on the name of the fruit in the Tree diagram will take you to that particular fruit in the Browse window straight away.

To restore all the items back to the database again:

- Click the **Cancel** button on the **Browser** window.

Extended Searches

Searches can be extended to include AND and OR, for example if you wanted to find out which fruits were yellow and round.

First ensure that you are using all of the records in the fruit database.

- Open the **Edit** menu and choose the item **All Records**.

Next choose the property you wish to search upon:

- Choose the property from the drop down list.

In the Fruits database this is the property **Colour**.

- Select the operand **Equals**

- Next you need to choose a value to match, in our example choose the value **Yellow**.

We are now going to extend the search;

- Click on the **And** button at the bottom of the window.

- Choose the new property from the drop down list.

In the Fruits database this is the property **Shape**.

- Select the operand **Equals**

- Choose the value to match, in our example choose the value **Round**.

- Click on the **OK** button. The search is now complete and the search criteria should read, **Select every Fruit whose Colour is Yellow and Shape is Round**.

- Click on **OK** to use this search criteria.

If the tree diagram window is open then the tree will be redrawn showing only the subset you have just created, and the browse window will appear allowing you to look through all the data items in the subset.

Note: In order to add to the database, test it or carry out a new search you must return the database into a state where it is using all records.

The Browse Window

The Browse feature allows you to edit either the values of the item's properties or to change the properties themselves. If in doing so the object is no longer unique then ReTreeval will need to ask you further questions.

Some of the fruits do not have all of their properties defined, for example we do not know the Size of a banana, but that is not relevant at the moment because its curved shape uniquely identifies it from all the other fruits. Neither does ReTreeval know about the shape of an orange or mandarin, this does not matter because they are distinguished by their size. We may have to enter this information as the database 'grows' or we may have to define a new property, for example we may ask the question, **"Does it have a stone?"**

• Click on the **Browse** tab in the main ReTreeval window.

    The main dialogue will extend as shown:

When browsing the database you are able to look at each item in turn. The item number is displayed in the top right hand corner of the window along with the total number of items in the database.

• Clicking on the 'bumper' buttons to the left of the item number will move to either the next or previous item.

You can move directly to an item by typing its number in the writable field and pressing the ENTER key. If the Tree diagram is open, clicking on the name of an item with the mouse will also take straight to that record in the **Browse** window.

The **Browse** window allows you to edit the data in a conventional *flat file* approach. When you look at an item you might find that not all of the fields have values. This is because ReTreeval might not have had to differentiate between that particular item and a similar one in the database. You can either leave these values empty or add values where appropriate.

Drop down lists are positioned to the right of each property. These are extremely convenient for entering data quickly and easily into the database, they also allow data to be entered with greater consistency. The drop down lists can be used from the keyboard as well as the mouse.

> Ensure that you have the tree diagram open, as any changes that you make will be reflected straight away in the diagram.

- Click on the browse bumper buttons to locate the Orange.

- Because we know that the Orange's **Shape** is **Round**, let's choose that value from the drop down list.

- Click on the **OK** button to complete the change.

> Notice that the Orange now has its **Shape** set to **Round**.

- Try doing the same with the **Mandarin**.

> All of the fruits now have their shape defined and are obviously divided so far into two groups, those that are **Round** and those that are **Curved**.

- Try changing the shape of the Lemon to **Oval** instead of **Round**.

> Then do the same for the **Lime**. Notice that the value **Oval** has now been added to the drop down list used for shape. Also notice how the tree diagram has changed in structure.

Whilst you are editing the records in this manner it is also worth noting that it is also possible to alter the **Property details**. Any changes that you make to a Property on one card will be reflected on all cards and the tree diagram immediately it is confirmed.

Editing a Property

In the Fruits example you might want to change the question from **What Colour is it?** to **What External colour is it?**
To do this:

- Click on the property you wish to alter. In the fruits database we have been using, click on **Colour**

- Edit the text to read **External colour**

> As soon as you move onto the next record or click on the **OK** button, the changes will be made to all records and the tree diagram.

Changing the Type of Question

You can also change the type of question being asked. To do this:

- Click on the **Browse** tab to enter the browse mode.
- Open the **Record** menu and choose the item **Convert Property...**
- Select the property whose question you wish to change, then select the type of question you wish to use.

Note: It is not always possible to convert from one type of question into another. For example you cannot convert from a property that has any answer to a binary question with Yes / No answers, but you can convert a binary question to a question with any answer.

You can add properties at any time and delete others when they are no longer required, but remember; ReTreeval will insist that every item remains unique and you cannot delete properties which are still required in order to maintain the items' unique characteristics.

Deleting a Property

To delete a property or question that is no longer required:

- Open the **Record** menu and choose the item **Delete Property...**

  Properties can only be deleted if all of its values are empty.

Deleting an Item

To delete an item from the database

- Use the browse window to locate the item you wish to delete.
- Open the **Record** menu and choose the item **Delete Record...**

  A confirmation box will ask you to confirm this request.

Graphing

Another unique feature of ReTreeval is the ability to graph data. Producing a graph within ReTreeval is really easy because ReTreeval automatically keeps a count of the occurrences of each value for every property.

Plotting a Graph

We'll use the Fruits database as an example for producing a graph:

- Open the **View** menu and choose the item **Graph**.

  The Graph window will open.

  By default you will see a graph of the **Colour** of the fruits. You will notice that ReTreeval also understands colours and it uses the appropriate colours when drawing its graphs.

Controlling Data Being Plotted
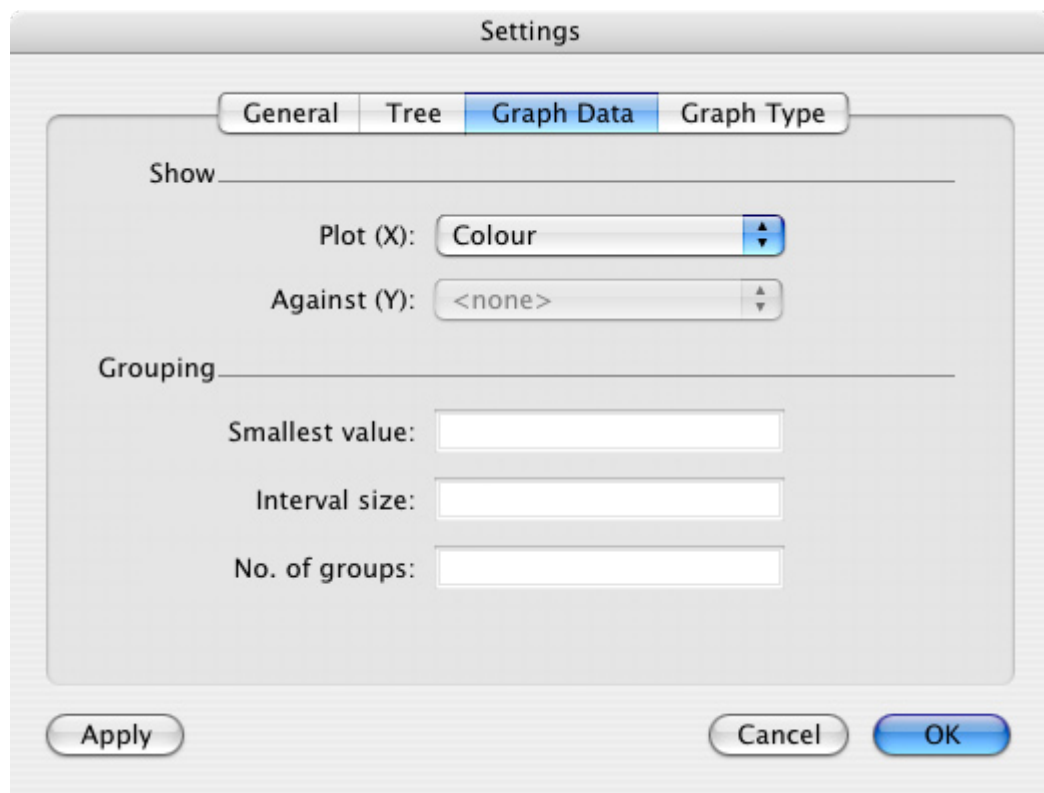
The first thing you are likely to want to change is the property that is being plotted, to do this:

- Move the mouse pointer to the **Graph** window, hold down the CTRL key and click the mouse button.

  This opens the Graph window's pop-up menu.

- Choose the item **Settings…**

  The **File Settings** dialogue will open and **Graph Data** tab will be automatically selected.

- Click on the pop-up menu labelled Plot (X) and choose Shape.

  In this example it is not possible to plot this data item against another property, and this is why the Against button is disabled.

- Click on either the Apply or OK button to confirm your choice.

  The graph will be updated accordingly.

Changing the Graph Type

ReTreeval can display three types of graph; Bar Charts, Line Graphs, Pie Charts and, when there are two sets of numerical data, a Scattergram.

- Open the File Settings dialogue and click on the tab labelled Graph Type.
- Select the graph type you wish to view.
- Click on either the Apply or OK button to confirm your choice.

  The graph will be updated accordingly.

Printing

ReTreeval can produce printouts of the tree diagram, the graph, and a text 'report' of the items in the database.

To Print a Report

- Open the **File** menu, open the **Print** sub-menu and choose the item Report...

  The Print Report dialogue will open as shown:
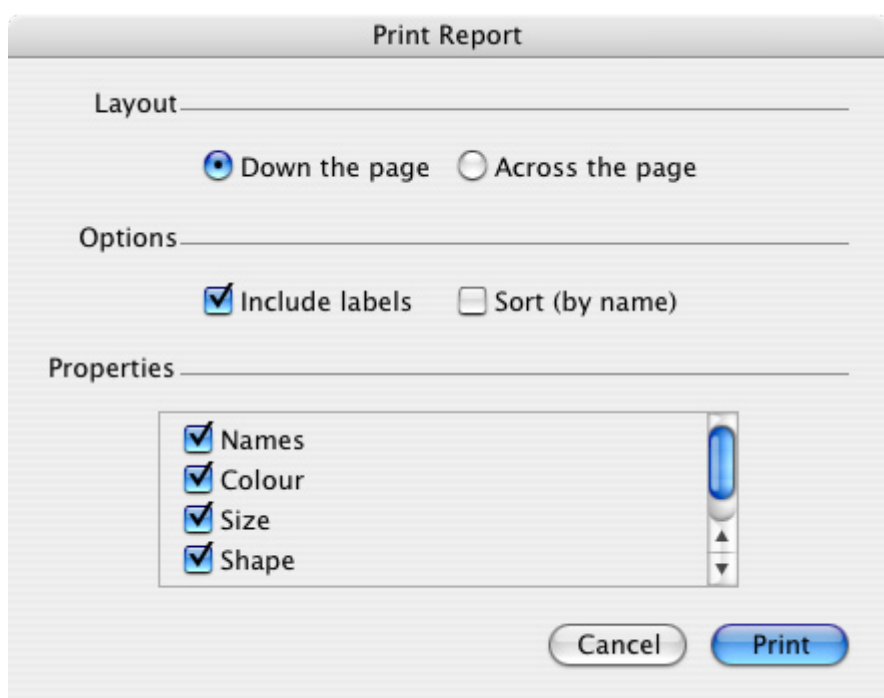
This enables you to control how the report will be formatted and which properties to include.

There are two types of layout, **Down the Page** and **Across the Page**.

This report layout is **Down the page**. The items are listed on the left 'down the page'.

If you wish you can choose to switch off the labels by using the **Include Labels** checkbox.

Name	Colour	Size	Shape
Lime	Green	Small	Round
Orange	Orange	Medium	
Mandarin	Orange	Small	
Apple	Red	Medium	Round
Banana	Yellow		Curved
Grapefruit	Yellow	Large	Round
Lemon	Yellow	Medium	Round

The layout below is **Across the page**.

Name	Apple	Banana	Grapefruit	Lemon	Lime	Mandarin	Orange
Colour	Red	Yellow	Yellow	Yellow	Green	Orange	Orange
Size	Medium	Large	Medium	Small	Small	Medium	
Shape	Round	Curved	Round	Round	Round		

You can also sort all the items into alphabetical order, by name, using the **Sort (by name)** switch.

You can also choose with properties you wish to include in the report by clicking on their switches in the scrollable list labelled **Properties**.

To Print the Graph

- Open the **File** menu, open the **Print** sub-menu and choose the item **Graph...**

To Print the Tree Diagram

- Open the **File** menu, open the **Print** sub-menu and choose the item **Tree...**

Exporting Files

Exporting the Report as a Text File

You can also export all the data in the database as a text file. The options in the dialogue window are exactly the same and the text is formatted in the same way.

To export a report:

- Open the **File** menu, open the **Export** sub-menu and choose the item **Report...**
  The **Export Report** dialogue will open, similar to the Print Report dialogue.
- Select the options you require to format your report.
- Click on the **Export** button to save your report.
  A **Save Report As** dialogue will open prompting to save the file in the usual way.

Exporting the Tree Diagram

The tree diagram can also be exported as an Apple Pict file. This is a type of graphic file that can be placed into many word processors and DTP programs.

To export the tree diagram:

- Open the **File** menu, open the **Export** sub-menu and choose the item **Tree...**
  A **Save Tree As** dialogue will open prompting to save the file in the usual way.
  The saved file can then be imported into other applications.

Exporting the Graph

The graph can also be exported as an Apple Pict file.

To export the graph:

- Open the File menu, open the **Export** sub-menu and choose the item **Graph...**
  A **Save Graph As** dialogue will open prompting you to save the file in the usual way.
  The saved file can then be imported into other applications.

Copying the Tree Diagram and Graph to the Clipboard

The tree diagram and the graph can also be copied to the clipboard so that they can be pasted into other applications. This method is slightly more convenient than saving and loading files.

To copy either diagram to the clipboard:

- Open the required view of either the tree or the graph.
- Format the graph or tree diagram as you require.
- On the appropriate diagram, hold the CTRL key and click the mouse button to open the diagram's pop-up menu.

- Choose the item **Copy Tree** or **Copy Graph**.

  The diagram will now be placed on the clipboard and is ready to be pasted into another application.

Relating Properties

Another powerful feature of ReTreeval is the ability to relate one property to another. For example if you were looking at minibeasts and asked 'Does the minibeast have legs?' If the answer was Yes then we can go on to ask 'How many legs does the minibeast have?', but it is somewhat pointless to ask this if it has no legs. In this way we say that the 'number of legs' property is dependant on whether the minibeast has legs or not.

Let's look at how we can make one property dependant on another.

- Open the example file **Minibeasts**.

- Open the tree diagram so we can view the database.

  You will notice that we have a question on whether the minibeast has legs or not, then further down we go on to ask how many pairs of legs per segment does the minibeast have. We are going to change this so that if the answer to the **Legs** question is **No** it does not then ask the other two questions.

- Open the **Edit** menu and choose the item **Relate Properties...**
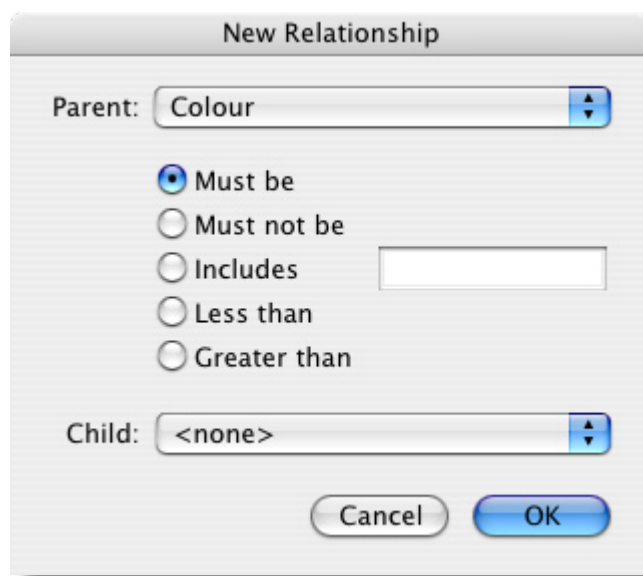
  The **Relationships** dialogue will open as shown.

  This dialogue displays all of the defined relationships between properties. In this example there are not yet any relationships.

- Click on the **New...** button to define a new relationship.

This will open the **Edit Relationship** dialogue as shown:

We define the relationship between a **Parent** and a **Child**. In this case the parent is the property Legs and the children will be the other two properties.

- Click on the drop down list labelled **Parent** and choose the property **Legs**.
- Select the option button labelled **Must be**
- Enter the text **Yes** into the writable field to the right of the option buttons.
- Click on the drop down list labelled **Child** and choose the property **pairs of legs**.
- Click on the **OK** button to confirm this relationship.

    The relationship will now appear in the list in the relationships dialogue.

- Click on the **New...** button once more and do the same thing again but this time with the **less than 14 pairs** of legs property.
- Finally click on **Done** to close the relationships dialogue.

Now let's test ReTreeval to see if these new relationships are working correctly.

- Click on the **Test** tab to go to test mode.

    The first question is **Does the Minibeast have legs?**

- Answer **No**

    ReTreeval will now ask you a number of other question, but these will not include the two you have just setup with relationships.

- Confirm that it is a snail by clicking on the **Yes** button and do the same thing again but this time answer **Yes** to the question about whether the minibeast has legs.

    ReTreeval will now go on to ask you questions about the number of pairs of legs per segment etc.

Setting Up a Template

It is possible to setup a template in ReTreeval that allows the user to enter only questions into the database. The children are then able to answer these questions, using their collected data, at a later date.

Creating a Template

- Load the ReTreeval application.

  You will need to answer the first few questions in the usual way. In the following example we are going to use woodland birds, but feel free to enter your own questions if you wish.

  In response to **Everything we are going to talk about is a...**

- Enter **Bird**

  You will then be asked if each item has a proper name;

- Click on the **No** button

  Normally you would now start to enter some items, in this example, the names of birds, but in this instance we only want to enter the questions.

- Choose **Add Question** from the **Edit** menu.

  A prompt will appear asking you to **Complete the question**. You can either use the default question or use another one more appropriate to the question you wish to ask.

- Click on the **Question...** button

  The Question dialogue will open.

- Click on the option **Does it have..........?**

- Click on the **OK** button.

  The question will now change to **Does it have........?**

- Enter the text **Black feathers** into the writable field.

- Click on the **OK** button.

  The dialogue will now revert back to the usual ReTreeval 'teach' mode.

  Let's add another question:

- Choose **Add Question** from the **Edit** menu.

- Click on the **Question** button to open the Question dialogue.

- Choose the option **Does it have..........?** then click on **OK**.

- Enter the text **an orange beak** into the writable field.

- You can carry on and enter all of the questions in this way.

- Remember to regularly save your work.

- Open the **File** menu and choose **Save**.

  The **Save As** dialogue will open.

- Choose where you are going to save your work to and give the file an appropriate name.

Complete your database entry by using the following questions:

- What **approximate length** is it?
- Does it have **bright red feathers?**
- Does it have **a red face?**
- What **colour breast feathers** has it?
- Is it **speckled**?
- Is it **Brown**?
- Does it have **a speckled breast?**
- Is it **speckled all over?**

You can continue to enter more questions if you wish.

- Save your database before continuing any further.
- Click on the **Stop** button.

You are now ready to enter data. If you already know some examples of British woodland birds then use them, if not;

- Enter in the name of the new bird, **Blackbird**.
- Click on the **OK** button or press the ENTER key.

You will be asked if the bird has black feathers.

- Click on the **Yes** button.

Then proceed with the next question. You do not have to answer every question, you can just keep clicking on the **OK** button until ReTreeval asks you for the name of the next bird. If you enter two birds with exactly the same properties then ReTreeval will ask you to differentiate between the two birds. You can do this by either entering a new question or by selecting one of the questions that have already been entered from the drop down list.

The tree diagram can be opened as soon as you start to enter data. Each time you then enter a bird the path you are taking through the questions is highlighted and the bird will immediately appear on the Tree diagram once you have finished entering all questions about it.

Bird	Black Feathers	Orange Beak	Approximate Length (cm)	Bright Red Feathers	Red Face	Breast Colour	Speckled	Brown	Speckled Breast	Speckled All Over
Blackbird	Yes	Yes	25	No	No	-	No	No	No	No
Rook	Yes	No	46	No	No	-	No	No	No	No
Robin	No	No	15	Yes	No	Red	No	Yes	No	No
Bullfinch	No	No	15	Yes	No	Red	No	No	No	No
Pheasant	No	No	80	Yes	Yes	-	No	-	-	-
Starling	Yes	No	22	No	No	-	Yes	No	-	Yes
Thrush	No	No	25	No	No	-	Yes	Yes	Yes	No
Sparrow	No	No	15	No	No	Brown	No	Yes	No	No
Green Woodpecker	No	No	34	Yes	Yes	Green	Yes	No	-	-
Blue tit	No	No	12	No	No	Yellow	No	No	No	No

Associating Files with Items

It is possible to link an item in the database to an external file located somewhere on your system. The file can be of any type, and when you ask ReTreeval to show the file it will attempt to run the file, so that it will load into the default application for displaying that type of file. You can also link to an application which will be launched when you click on **Show**.

To link an item to a file:

- Click on the **Browse** tab to extend the main window.

  You will note there are two buttons at the bottom of the window, **Select...** and **Show**. If there is no file linked to the item then the Show button will be disabled.

- Click on **Select...** to open a browser dialogue where you can select a file or application to link to the item.

  When you have done this the **Show** button will be enabled.

- Click on the **Show** button to launch the file or application.

  If the linked file is moved, deleted or renamed then a message box will appear explaining that the file cannot be found.