

ATLAS.ti 5.5: A Qualitative Data Analysis Tool

Part III: Searching Your Data

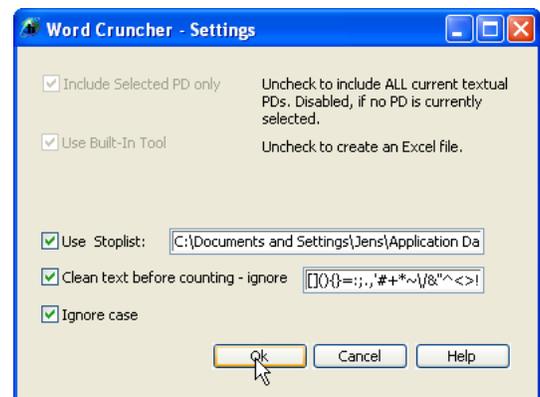
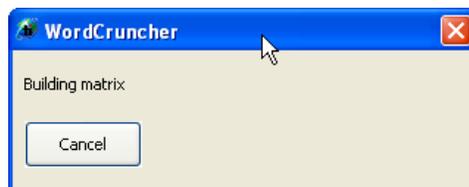
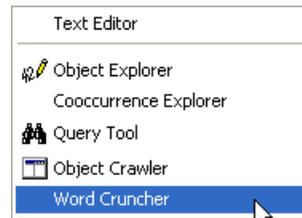
ATLAS.ti has a variety of tools to help you search your own data.

Word Cruncher

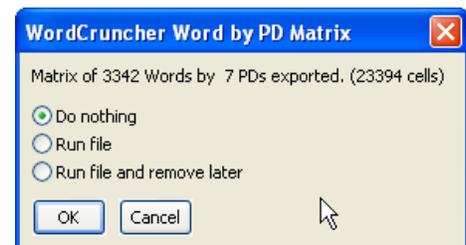
At the most basic level, the word cruncher can show you all of the frequencies of the words within your data. ATLAS.ti creates an Excel spreadsheet of every word and totals the frequency of that word within each PD and totals those frequencies for you.

To access the Word Cruncher:

1. Go to the **Tools** on the main menu.
2. Select **Word Cruncher**. You will be prompted to the Settings options. Leave all settings checked and select OK.
3. You will be prompted to pick a location to save the Excel file that ATLAS.ti will create.
4. Choose a location for your file, and save it.
5. Once you've saved the document, the program will begin counting. You will see the following window:



6. When it is complete, you will see the window pictured right. If you want to look at the file immediately, select **Run file**. Excel will be launched, and the file will open.



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Object Crawler

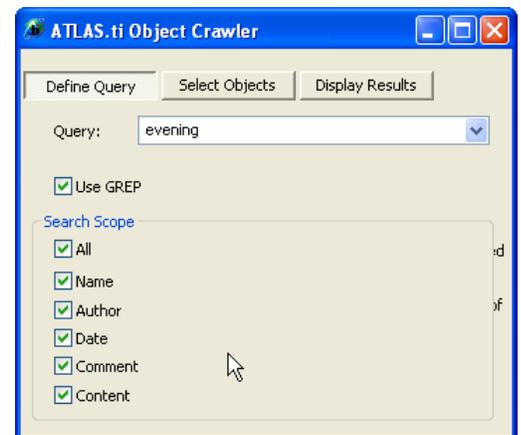
This searching feature enables a user to define the search within his/her data.

To access Object Crawler:

1. Open by clicking on **Search through all the Objects** button on top.

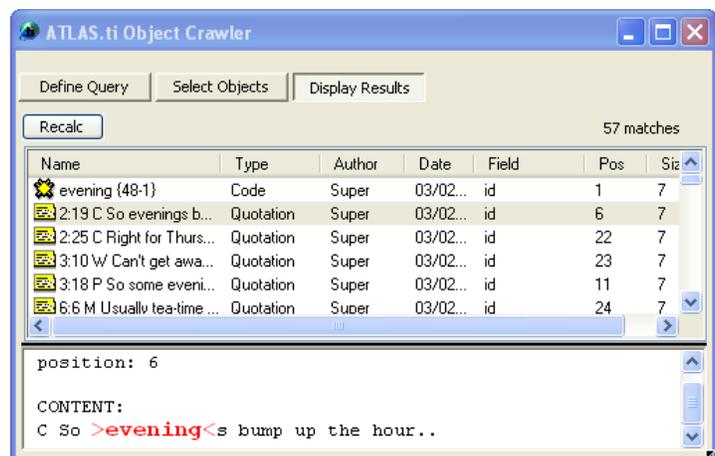


2. In **Define Query** – make sure you have checked a **Search Scope**.
 - ⇒ You can check **All** – it will pick all the documents you have and comments you have created.
 - ⇒ If you check **Content** only – all the rest (i.e. you own comments) won't be searched through.



3. However, if you want to look the word / term through your own quotations without taking into consideration anything else – you need to switch to the next tab – **Select Objects**.
4. Here you have a variety of choices: from your own codes to primary documents. The result may be overwhelming but you can always switch back to **Select Objects** tab and recalculate the results.
5. To see the results of your query, select the **Display Results Tab**. Each instance of your query is shown.

- ⇒ A single click on any result will show you the result in context.
- ⇒ Icon and type of the code tell you in what part of your documentation it was found.



Note:

In this example, you can see what happens if your search word is similar to one of your codes, and you are selecting all types of objects.

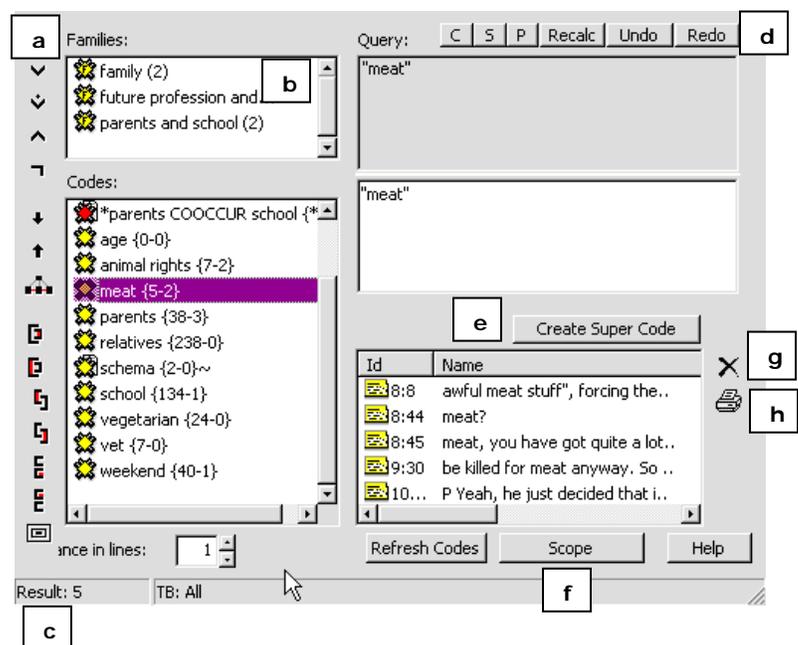
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Query Tool

The query tool's most basic function is to retrieve quotations for a given code. At more advanced levels, the query tool can be used to create a query (search) built with operators that define certain combinations of codes or help highlight relationships between codes.

1. To access the **Query Tool**, select the **binoculars** button on the main tool bar.
2. The **Query Tool** window will be displayed.
3. Within this window, you can perform a variety of tasks. All of these will be explained in greater detail later in this document. The left side of this window contains the tools to build the query -- codes, operators, and families. The right side of the window is used to formulate and display the results of a query.

- a. Operators allow you to construct more complex queries with codes.
- b. Code families, if created, will be displayed in this window. They can also be used to create queries.
- c. Displays the numeric results (number of quotations) retrieved by your query.
- d. These buttons allow you to edit calculations in your query.
- e. A **Super-Code** is a way of saving a query.
- f. **Scope** can help filter or further define your query to retrieve quotations from certain documents.
- g. The X allows you to delete certain quotations from your results list.
- h. Print your results.



To build a simple query:

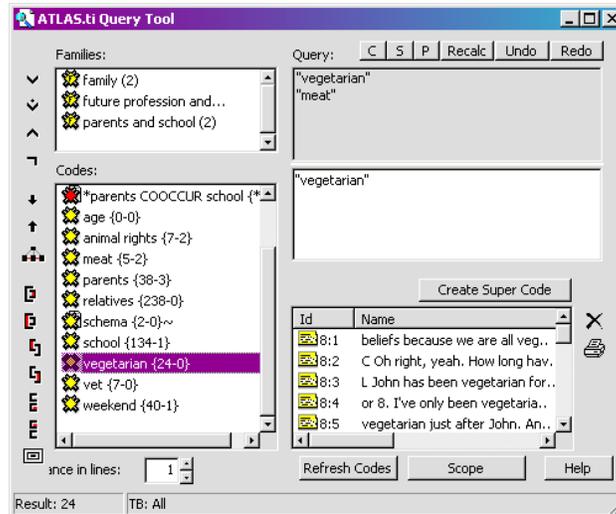
1. Select a code by double-clicking it. The code will appear both above and below the red line. The quotations associated with this code will appear in the **Result** window.
2. Selecting another code displays all of the quotations associated with that code.

Notice that the **Result** window now only displays 7 quotations. The quotations associated with parents are not displayed; only those associated with animal rights are displayed.

3. The grey box above the white one shows the query that is being currently built vegetarian and meat. The white box shows the current query – vegetarian.

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- To create a more complex query for vegetarian and meat, an operator needs to be selected.



Query tool operators

ATLAS.ti has three types of operators: **Boolean**, **Semantic**, and **Proximity**.

Boolean operators make combinations of codes to retrieve quotations. They are the most common operators and used to make basic to more complex queries.



OR

A or B

This operator has a high level of retrieval but is not precise; it will retrieve MANY quotations.

Example:

All quotations coded with vegetarian OR vet.



XOR

Only A or only B, exactly one of the terms matches

This operator translates into "either one or the other."

Example:

All quotations coded with EITHER vegetarian OR meat.



AND

A and B must co-occur exactly, all terms match.

This operator is highly selective; precision is high but retrieval is low. Using this in a query often results in no retrieval.

Example:

All quotations coded with vegetarian AND meat.



NOT

None of the search terms match

This operator looks for all quotations that are absent of a code.

Example:

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A given project may have 492 quotations; 5 are coded with meat. This query would yield all quotations without meat or 487 quotations from the project.

Semantic operators help refine a query where codes that have already been connected through theory building i.e. creation and application of networks (Networks will be explored later in this document).

These operators can only be used with codes, **not** with code families.

Proximity operators on spatial relationships between quotations		SUB	Also known as the DOWN operator, SUB is used to retrieve all quotations that are sub-terms (created using the ISA relation) of another code. This operator searches from higher to lower relationships within a network.
		Example:	All quotations coded with social life or any sub-term (code) of social life.
		UP	The UP operator retrieves quotations of a selected code by looking at all Super Codes above it in a network.
		Example:	All quotations coded with school and friends and social life (super code).
		SIBling	The SIBlings operator retrieves all quotations attached to a code or any "descendants" of the code's "parents" within a network.
		Example:	All quotations coded with social life or any value of social life. All quotations coded with social life or any value of social life.

ons. When using these operators, the query tool looks for quotations within quotations, one after another, etc. They differ from other operators in that they are non-commutative; the use of these operators relies on the sequence of codes to define the query. For instance, A FOLLOWS B is not equal to B FOLLOWS A. Therefore, the code that is entered first is the one which determines the quotations to be retrieved.

 **WITHIN** A WITHIN B retrieves all quotations coded A that are contained **within** quotations coded B.

Example:

All quotations coded with evening that are within quotations coded with conversation.

 **ENCLOSES** A ENCLOSES B retrieves all quotations coded A that **contain** quotations coded B.

Example:

All quotations coded evening that contain quotations coded conversation.

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OVERLAPPED_BY A OVERLAPPED_BY B retrieves all quotations coded A that are ***overlapped by*** quotations coded B.

Example:

All quotations coded evening that are overlapped by quotations coded conversation.



OVERLAPS A OVERLAPS B retrieves all quotations coded A that ***overlap*** quotations coded B.

Example:

All quotations coded evening that overlap quotations coded conversation.



FOLLOWS A FOLLOWS B retrieves all quotations coded A that ***follow*** quotations coded B.

Example:

All quotations coded evening that follow quotations coded conversation.



PRECEDES A PRECEDES B retrieves all quotations coded A that ***are followed by*** quotations coded B.

Example:

All quotations coded evening that are followed by quotations coded conversation.



CO-OCCURENCE A CO-OCCURRING WITH B retrieves all quotations coded A that ***co-occur with*** quotations coded B. This is a short-cut for combining all proximity operators, except follows and precedes, within a query.

Example:

All quotations coded evening that co-occur with quotations coded conversation.

Creating a query using operators

Queries are created using operands (codes) and operators (Boolean, semantic, and proximity). ATLAS.ti queries are based on the principle of Reversed Polish Notation (RPN). Unlike other mathematic principles, RPN does not use parentheses or any other characters

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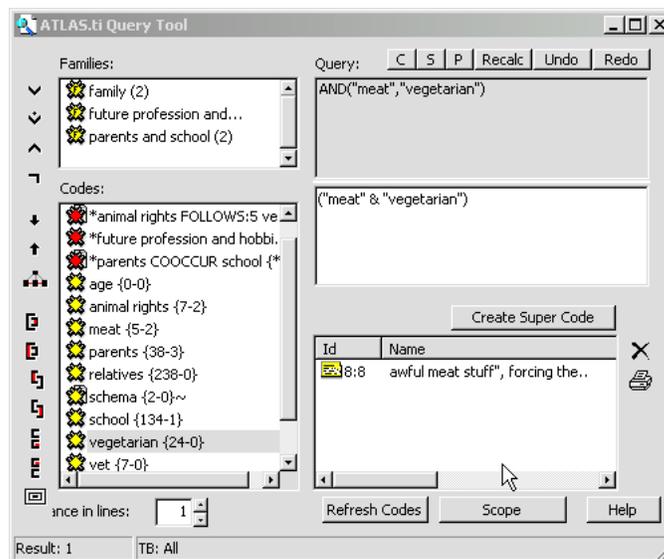
to determine the application of the operators. However, the order in which operands and operators are entered into a query does impact the outcome.

Using RPN, operands are entered first. Since most ATLAS.ti queries require two operands, then two must be entered before any operators are applied to the query. Then the operator(s) can be applied.

Example: A Boolean Query

1. Select the **Query** tool from main toolbar (binoculars).
2. The query window will open.
3. Select an operand by double-clicking it. Remember, unless you are using the NOT operator, you will need to select two operands before you select the operator.
4. In this example, the query is:
All quotations coded meat AND vegetarian.

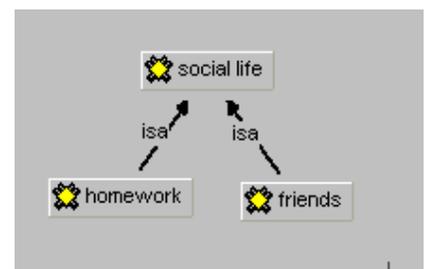
- ⇒ Notice that the individual codes have more than 20 quotations between them.
- ⇒ When the operator AND is added to the query, the result is 1 quotation.
- ⇒ If the researcher wished to see a quotations in the Result window in context (within the PD), any quotation could be double-clicked and the PD would appear with the quotation highlighted.



Example: A Semantic Query

This type of query can only be executed if the researcher has already begun to build some networks within the project. In our example we are selecting a single code. Semantic queries can not be applied to the Code Families.

1. Select the **Query** tool from main toolbar (binoculars).
2. The query window will open.
3. In this example, the query will use the SUB operator to find all quotations that are sub-terms of social life. Please recall that using the SUB operator should yield only sub-terms that are related based on a ISA relationship, as pictured to the right.



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4. In the query window, the only operand that is selected is social life. The initial query retrieves a total of 68 quotations.
5. When the SUB operator is applied, the query retrieves a total of 108 quotations (Figure 1). While this is a predictable result, a researcher could extend this query by adding more operands, making it more complex.
6. By adding the operand school and the operator AND, the results change dramatically (Figure 2).

Figure 1

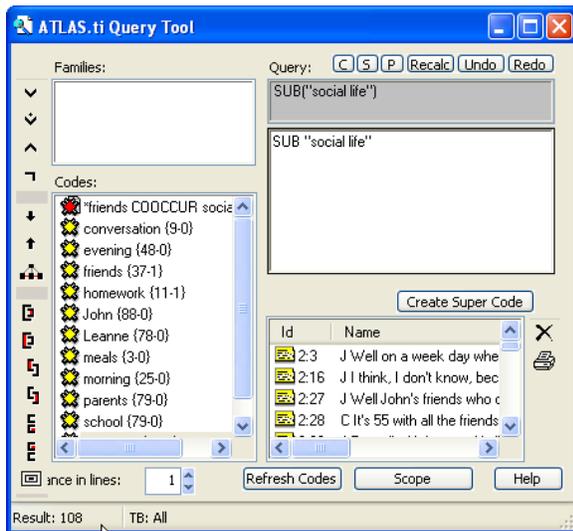
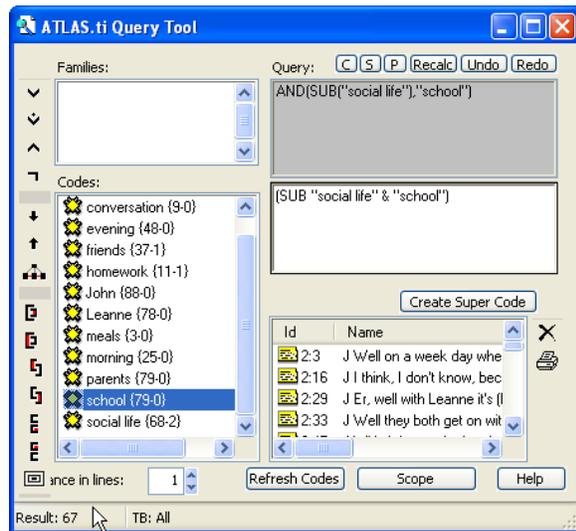


Figure 2



Example: A Proximity Query

1. Select the **Query** tool from main toolbar (binoculars).
2. The query window will open.
3. In this example, the query will use the WITHIN operator to find all quotations coded morning WITHIN quotations coded parents.
4. The operand morning is selected first, and the operand parents is selected second. Remember, the proximity operators are non-commutative. So, the query will yield only quotations coded morning WITHIN quotations coded parents.
5. This query yields a total of 4 quotations (Figure 3).
6. If the query is reversed, parents selected first and morning second, then the query yields a total of 5 quotations (Figure 4). While this is not a huge difference, it does illustrate the importance of considering the non-commutative nature of

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using proximity operators.

Figure 3

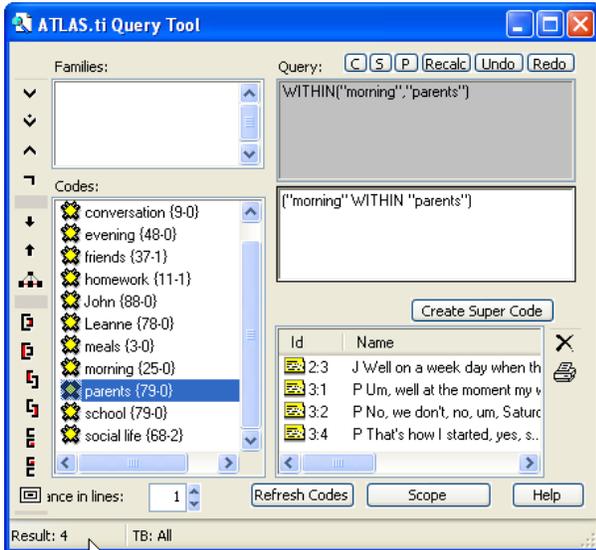
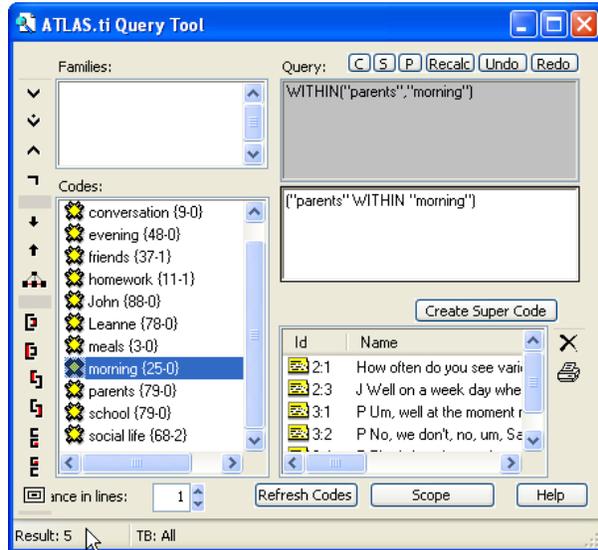


Figure 4

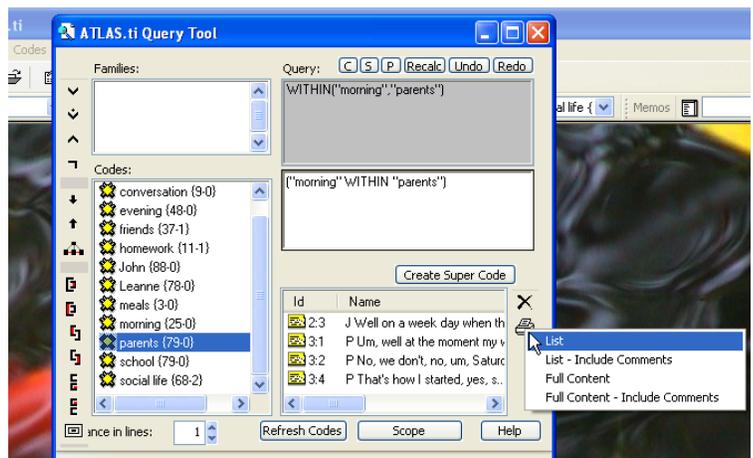


Output of query

Once they are created, queries can be outputted and printed just like objects. They can be created, reviewed, and “cleaned up” before they are outputted.

1. In the query window, select the **Printer** button.
2. A window will be displayed to choose from the four query output options, listed below.

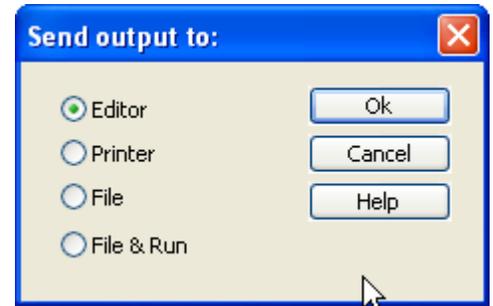
- ⇒ **List** – Outputs only the location and first sentence of each quotation.
- ⇒ **List – Include Comments**
Same as above but includes comments
- ⇒ **Full Content**
Outputs the location and complete quotation of each quotation.
- ⇒ **Full Content – Include Comments**
Same as above but includes comments



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3. After the output is selected, there are four output options.

- ⇒ The **Editor** enables the researcher to make changes to the output and save it as a Text or Rich Text Format document.
- ⇒ The **Printer** feature sends the output directly to the printer. This does not enable you to edit the output.
- ⇒ The **File** and **File & Run** options allows you to save the output as a Rich Text Format document (.rtf). The only different is that the **File & Run** option launches the output in another window, hence the **Run** feature.



Note:

The **X** button, located just above the **Printer** button, enables the researcher to delete certain quotations from query before outputting it. Highlight the quotation to be removed and select the **X** button.

Queries and Super Codes

The name Super Code can be misleading; Super Codes are not codes in the same sense as codes created during the data mining process. There is a significant difference between the two: Super Codes are not directly linked to quotations as are regular codes. Super Codes are really a stored query that can retrieve quotations, just like a regular code.

Super Codes are referred to as “intelligent” because they can change their behavior and automatically update themselves as changes are made to their associated codes. The density of a Super Code, however, is not displayed as it is with other codes. An asterisk replaces that number in the workspace (Figure 6). The reason ATLAS.ti displays Super Codes this way is that density (frequency) count changes any time you modify any of the codes in the query of the Super Code. Consequently, you cannot see Super Codes in the margin area of the PDs.

Despite these limitations, Super Codes are powerful and versatile. They can be used in a query to do more complex queries and can also be used in code families and network views.

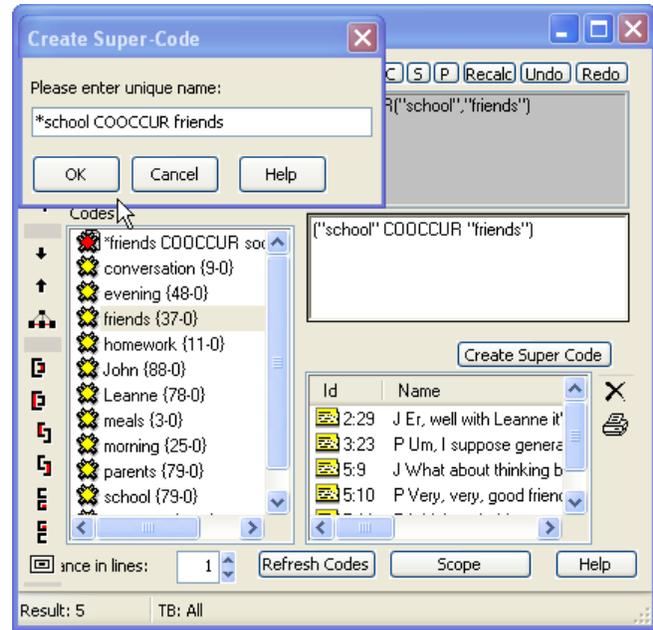
Figure 6

Name	Gr...	De...	Autho
*friends COOCCUR social life~	*	0	Super
conversation	9	0	Super
running	10	0	Super

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To create a Super Code

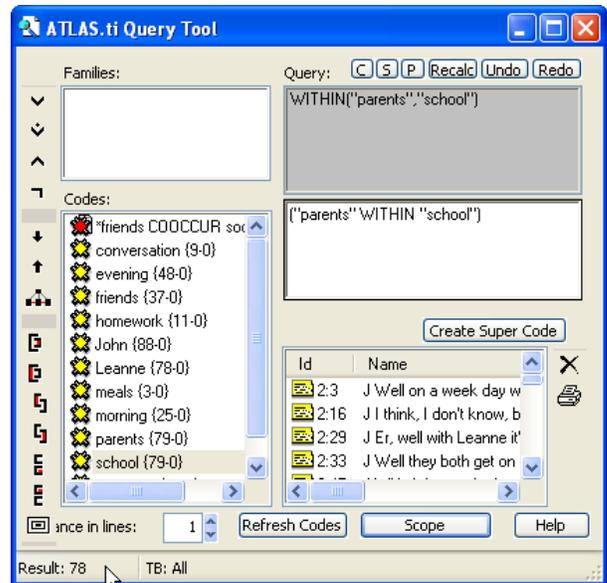
1. Open the **Query** tool (binoculars).
2. Create a query.
3. Select the **Super Code** button.
4. You will be prompted to name the Super Code. The default is the query itself.
5. The new Super Code now appears as a code, both in the query codes window and the project workspace.



Restricting queries

Within the Query tool, a researcher can define the scope of a query so that it is restricted to retrieving quotations from specified PDs.

1. Open the Query tool (binoculars).
2. Create a query.
3. In this example, the query parents WITHIN school retrieved 78 quotations.
4. Within the query window, select **Scope**.
5. The **Scope of Query** window will open. In this window, PD families and the PDs themselves are listed. Notice that only the Boolean operators are available to define the query.

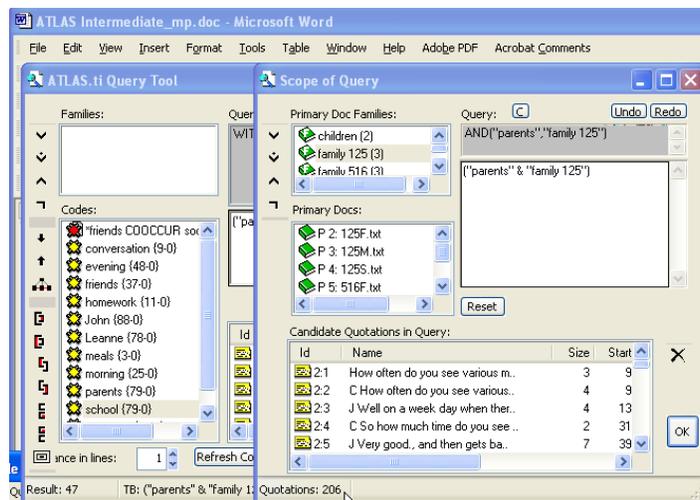


6. In this example, the original query: parents WITHIN school has been restricted to parents in family 125.

The

Scope feature restricts the query from parents in family 125.

7. The families -- parents and family 125 --



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are selected first (just like in a regular query). Then the AND (^) operator is selected.

8. The results are then displayed in the Result window: 208 quotations. Notice that the Results in *original* query window are now 47.
9. To restore the original query, select the **Scope** button again. Then select the **Reset** button.

