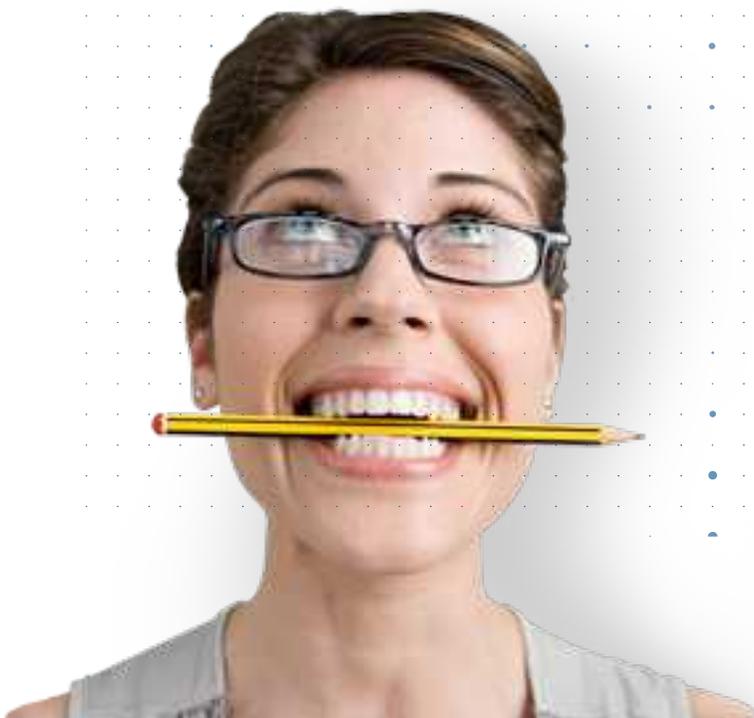


ATLAS.ti 6

Concepts and Functions



atlas.ti
the knowledge workbench



Software for qualitative data analysis,
management, and model building.

ATLAS.ti 6 User Manual

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Version: 349.20111116

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Introduction

This document provides a quick overview of the basic concepts underlying the work with ATLAS.ti. It is designed to provide the “big picture,” and in doing so aims at helping you to quickly get your bearings when first starting out your work with the program.

Proper understanding of the central concepts and functions is key to avoiding some of the most common pitfalls. We have therefore compiled those passages from the full manual that (a) introduce the major concepts and their corresponding functions (such as codes, quotations, memos, families, etc.), (b) provide practical tips in how to approach your projects (e.g. data and project management), and (c) have added a comprehensive glossary that provides succinct overviews of all the central terms, concepts, and functions that you encounter in your work with ATLAS.ti.

The full manual is available from <http://manual.atlasti.com>

We also recommend the following essential resources for more detailed information, additional help, and for practical guidance in getting started:

Quick Tour: <http://quicktour.atlasti.com>

Free Webinars: <http://webinars.atlasti.com>

Video Tutorials: <http://youtube.atlasti.com>

Knowledge Base: <http://kb.atlasti.com>

Training Center: <http://training.atlasti.com>

Workshops: <http://workshops.atlasti.com>

Support Center: <http://support.atlasti.com>

Main Concepts

The Hermeneutic Unit (HU)



The Hermeneutic Unit (HU), provides the data structure for each project in ATLAS.ti. The name was chosen to reflect the approach we have taken when building a support tool for data interpretation. There was no intention to frighten potential users with this admittedly tongue-twisting name.

Get acquainted with this concept!

If you understand the HU concept, then you understand almost everything that is necessary to work with ATLAS.ti!. And, in spite of its impressive name, it is simple and practical to use.

Everything that is relevant to a particular project (e.g., a research topic) is part of the HU and resides in the electronic environment! For instance, the Primary Documents representing the data sources, the quotations, the codes, the conceptual linkages (families, networks), and the memos, etc., are all part of one HU.

One obvious advantage of this bundling is that the user only has to deal with and think of one entity. Activating an HU is the straightforward selection of a single file; all associated material is then activated automatically.

The lowest level of an HU contains the Primary Documents, followed closely by the "quotations" as selections of the Primary Documents. On the next level, codes refer to quotations. Memos - you meet them everywhere.

The lowest level of an HU contains the PDs, followed closely by the quotations as selections of PDs. Codes refer to quotations. Memos - you meet them everywhere.

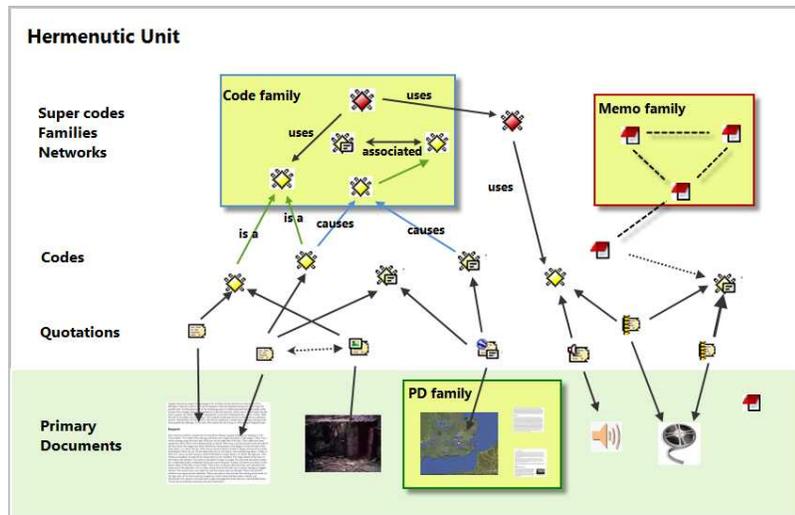


Figure 1: The hierarchy of objects inside a Hermeneutic Unit

An HU can become a highly connected entity, a dense web of primary data, associated memos and codes, and interrelations between the codes and the data. To find your way through this web, ATLAS.ti provides powerful browsing, retrieval and editing tools.

Primary Documents (PD or PDoc)

Primary Documents represent data sources. These can be text, image, audio, video or geographic materials that you wish to interpret. The content of PDocs is usually stored in data files on your computer.

This content is turned into primary documents by assigning them to an HU. The source files remain external to the HU. It is however also possible to create internal text documents and to assign memos as a internal PD. When using data files as external sources for your PDs, then you need to make sure that access to these sources is provided. This means the source file has to remain at the referenced location and should not be renamed or moved; otherwise the HU cannot find it. To not endanger the integrity of your coding, data sources should also not be changed outside of ATLAS.ti. ATLAS.ti offers an edit mode in case you need to make changes to your data sources. See below "Data and Project Management".

Primary Document Families (Data Attributes)

Families in ATLAS.ti are a group of objects (see the entry “Families” below). Primary document families fulfill a special function as they can be regarded as quasi dichotomous variables. You can group all female interviewees into a PD family called “female”. All male interviewees into a PD family called “male”. You can do the same for different professions, marital status, education levels, etc. The classification is a 0 / 1 classification. 1 means the document is part of a particular group; 0 means it is not part of the group.

Following a special syntax, you can also create PD families that can be imported or exported as variables with two or more characteristics based of an Excel table like Gender::male and Gender::female.

PD Families can be later used to restrict code based searches like: Show me all data segments coded with “attitude towards the environment” but only for females who live in London as compared to females who live in the country side. You can also use PD families as filter to reduce other type of output like a frequency count for codes across a particular group of documents. See the chapter “Family Life” in the full manual.

Quotations



A quotation is a segment from a PD that is interesting or important to the user. In textual documents, a quotation is an arbitrary sequence of characters ranging from a single character, a word, a sentence, or a paragraph up to the entire data file.

Free quotations resemble passages “scribbled” in the margin of a book.

Usually quotations are created by the researcher. However, if repetitive words or phrases are found in the text, the Auto-Coding feature can be used to automatically segment these quotations and assign a code to them. When a quotation is created, ATLAS.ti automatically assigns an identifier to it. This identifier is built from the index of the primary text to which it belongs and the first 30 letters (note that a different length can be set via Preferences) of the text segment, e.g., “1:21 Therefore a more efficient fil...”. The identifier is displayed in list windows and printouts. For graphic, audio, and video segments, the original file name of the PD is chosen as an identifier.

Although the creation of quotations is almost always part of a broader task like coding or writing memos, “free” quotations can be created that indicate interesting parts in the primary data for which a meaningful classification has not yet been found. See “The Textual Level – Basic Functions” in the full manual.

Quotations as Layers

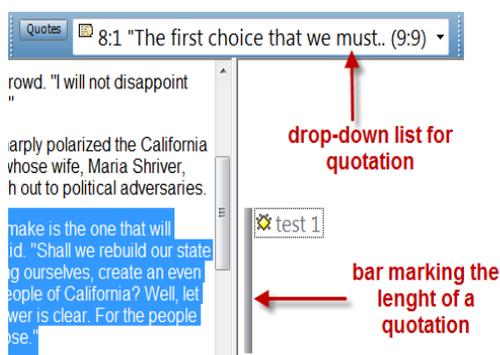
Quotations are stored inside the HU, independent of the document to which they belong.

Quotations need to be regarded as a transparent layer on top of a document. Quotations are stored independently of the PD inside the HU. Technically speaking, a quotation consists of the identifier (a number) and a pair of coordinates that specify the beginning and end of the quotation. The content of a PD file (the data source) is therefore not altered by the creation, deletion, or modification of quotations.

[Read more on quotations in our library:](#)

http://downloads.atlasti.com/library/Maietta_2009-05_6.pdf

Quotation references



The bars in the margin mark the length of the quotation graphically. The entry in the quotation field shows a textual reference for the quotation. It consists of the following elements: ID, name, start and end position.

ID: The quotation ID is composed of the number of its P-Doc and a second number indicating when the quotation was created. The ID 8:1 means that the quotation is from P-Doc 8 and is the first one that was created in this document. The reason for the chronological numbering is to do with the fact that you will not necessarily code a document from the first line to the last. You will jump between passages and modify or delete some quotations during the coding process. A linear numeration would have to be updated with every single quotation that is inserted, which would take up unnecessary computation capacity. Sorting the quotations by their start position, for example, offers a clear linear view of your quotes. Recently an option was added to change the chronological numbering to a sequential order if need be (**QUOTATIONS / MISCELLANEOUS / RENUMBER ALL TO DOCFLOW**). This can for example be useful when coding open ended questions from survey data and you want to keep the cases in synch with the cases in the SPSS file.

Name: The name shows the first 30 characters of a textual quotation. This is the default setting which can be changed under **EXTRAS / PREFERENCES / GENERAL PREFERENCES**. Quotations based on image, audio or video files show the file name. The name of a quotation can be renamed. This is a useful option for image, audio and video quotations, as we will see below.

Start and end positions: The figures in brackets after the quotation name show the location (start and end position) in the document. For textual quotations,

the reference given is to the paragraph numbers within which the coded segment occurs. (9:9) thus means that the quotation starts and ends in paragraph 9.

For image files, the rectangular area marked as the quotation is referenced. Audio quotes use a time reference, and for video quotations you can choose between time or frame numbers.

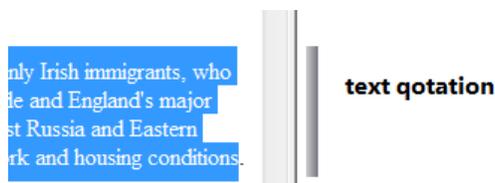
References for PDF quotations consist of: page number and number of characters on the page for start and end positions. In case the document contains columns, the column number is provided as well.

Video tutorial: <http://www.atlasti.com/video/article/creating-quotations.html>

Types of Quotations

In accordance with the six different types of PDs, there are also six different types of quotations:

Text Quotations



A textual quotation originates from an arbitrary sequence of selected characters.

Textual quotations represent (for the computer) a sequence of characters ("strings") and can be of arbitrary size. Sentences, speech turns, or paragraphs are often the basis for the length of textual quotations. Only text offers enough "syntactical clues" to allow for searches for the occurrence of specific evidence that may support a concept. Text also offers the option for automatic segmentation as used by the Auto-Coding procedure (see the section on "The Auto-Coding Tool" in the full manual).

Graphic Quotations



The creation, activation, and display of graphical quotations has similarities with, but also differs from, their textual counterparts. A graphical quotation is a rectangular region inside a graphical PD. From its data structure, it is identical to textual quotations since their main attributes are also the PD identifier and two coordinates that mark the beginning and end, defining a rectangle through its upper left and lower right corner.

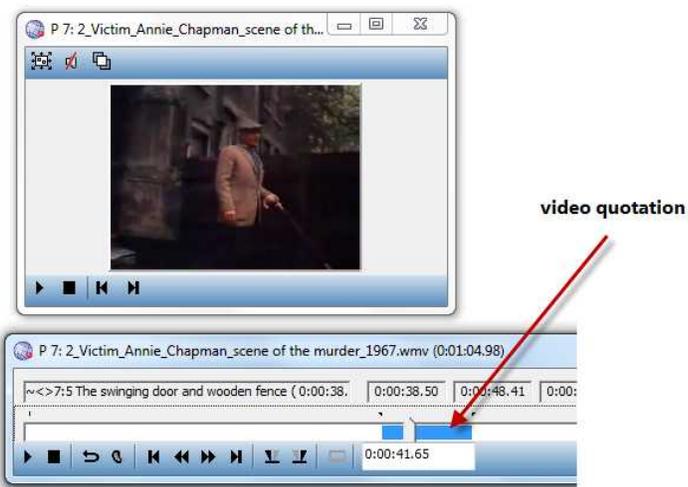
Handling graphical quotations is analogous to marking text passages in a textual document. See "reating Graphical " on page 158.

PDF Quotations

PDF quotations can be of a textual or of a graphical nature. The quotation references for textual quotations indicate the page number and the start and end position on the basis of character counts For example: (31:1537-31:1745) means that this quotation is from page 31, starting at character 1537 and ending at character 1745. The reference for coded images indicates the position of the quotation within the PDF file like: (@422-@618).

[Read more about using PDF documents in ATLAS.ti in our library:](http://downloads.atlasti.com/library/Friese_2009-05_18.pdf)
http://downloads.atlasti.com/library/Friese_2009-05_18.pdf

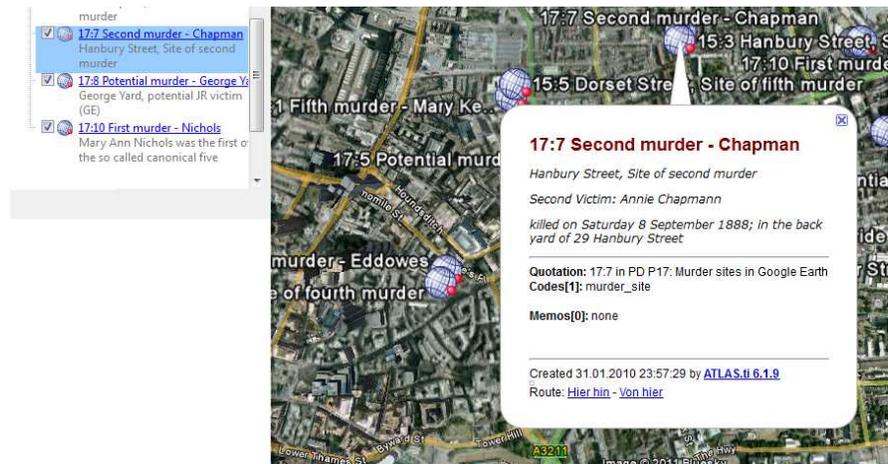
Audio and Video Quotations



Audio and video quotations can be as short as a few milliseconds. The length of a quotation can be selected on a time line. Segment starting points and length are displayed in the following formats:

milliseconds / HH:MM:SS:ms / frames (for videos)

GoogleEarth Quotations



When creating a GE quotation, you see the ATLAS.ti icon on the GE map. It is linked to one location and thus is different from all other types of quotations that present a range. The quotation ID shows either the name of the document or the feature's name (if applicable). In addition the geographic reference of the marked location is provided.

See our library for an example on how to work with GoogleEarth data:
http://downloads.atlasti.com/library/Cisneros_2009-03_17.pdf

Codes



The term code is used in many different ways. First we would like to define what that term means in qualitative research and then in ATLAS.ti.

Coding Objectives

From a methodological standpoint, codes serve a variety of purposes. They capture meaning in the data. They also serve as handles for specific occurrences in the data that cannot be found by simple text-based search techniques.

Codes are used as classification devices at different levels of abstraction in order to create sets of related information units for the purpose of comparison (e.g., a concept like "Coping Strategy").

Keep code names brief and succinct. Use the comment pane for longer elaborations.

From a "low level" tool perspective, codes are typically short pieces of text referencing other pieces of text, graphical, audio, or video data. Their purpose is to classify an often large number of textual or other data units.

In the realm of information retrieval systems, the terms "index," "indexing," or "keyword" are often used for what we call "code" or "coding".

The length of a code should be restricted and should not be too verbose. If textual annotations are what you want, you should use quotation comments instead.

The technical aspects of coding are described under **Textual Level – Basic Functions**, p. 116 ff in the full manual.

You find information on how to structure a code list in ATLAS.ti in our library:

- http://downloads.atlasti.com/library/Friese_2009-09_1.pdf
- http://downloads.atlasti.com/library/Woolf_2007-03_13.pdf

Video Tutorials:

- <http://www.atlasti.com/video/article/coding-basics.html>
- <http://www.atlasti.com/video/article/code-management-ii.html>
- <http://www.atlasti.com/video/article/the-margin-area-part-i.html>
- <http://www.atlasti.com/video/article/the-margin-area-part-ii.html>

Code Reference

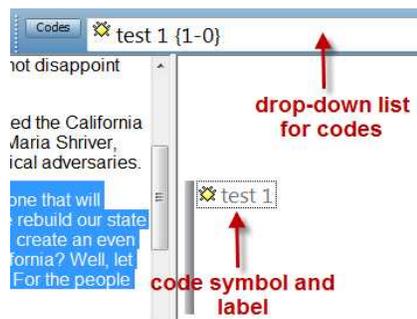


Figure 2: Codes in ATLAS.ti

The selected code word is written next to the quotation bar in the margin. You can recognize codes by the yellow diamond symbol.

The entry in the drop-down list in **Figure 2: Codes in ATLAS.ti** reads: "test 1 {1-0}". The first number shows the frequency (how often the code has been applied). It gives you some information on the groundedness of a code, i.e. how relevant this code is in the data. The second number the density (how many other codes this code is linked to). Hence the code "Test 1" has been used only once so far and it is not yet linked to any other code.

To learn more about linking codes, read the entry on the **Network View function** and take a look at the [Quick Tour](#).



Text Search Tool

From simple string matching to sophisticated pattern match (GREGP) and category search, all is available in the Text Search Tool. See the chapter on "Special Tools" in the full manual.

Word Cruncher

The Word Cruncher counts all words in textual PDs. The count can be limited to one PD only. To clean up the count, a stop list can be defined to exclude special symbols or words like 'and,' 'or,' 'the,' etc. The result can be displayed in an Excel table. See the chapter on "Special Tools" in the full manual.

Auto Coding Tool

If the text itself contains important key words, the Auto Coding Tool scans the text and automatically assigns a pre-selected code to matching text passages. If so desired, the process can be controlled by manual confirmation of each action. See the chapter on "Special Tools" in the full manual.

Memos



Memos capture your thoughts regarding the text and are an important device for creating theory. A "memo" is similar to a code, but usually contains longer passages of text.

A memo may "stand alone" or it may refer to quotations, codes, and other memos. They can be grouped according to types (method, theoretical, descriptive, etc.), which is helpful in organizing and sorting them. Memos may also be included as the objects of analysis by assigning them as PDs.

See the section on memo writing under "Textual Level – Basic Functions", p. 128 ff. in the full manual. – Also read these library articles:

- http://downloads.atlasti.com/library/Friese_2009-09_1.pdf
- http://downloads.atlasti.com/library/Friese_2008-12_8.pdf

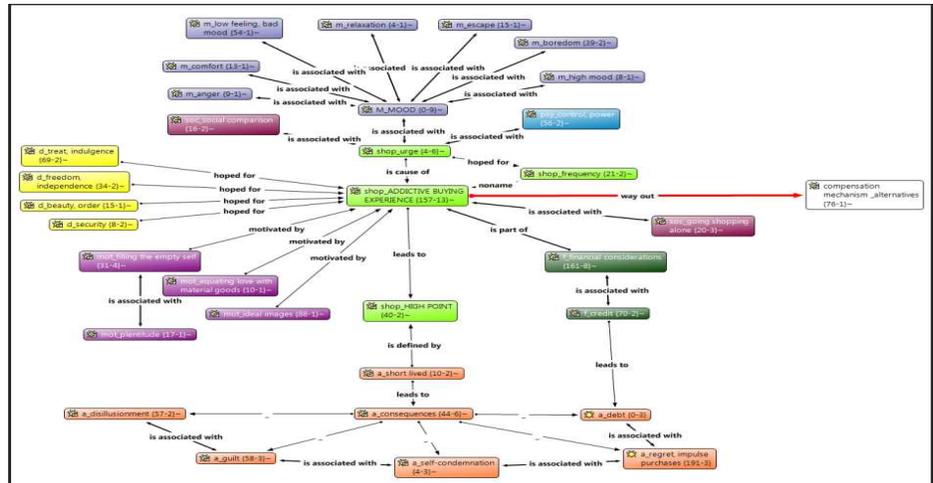
Families



Families are a way to form clusters of PDs, codes, and memos for easier handling of groups of codes, memos, and PDs. Primary Document families can be regarded as attributes or variables.

Families can be combined using logical operators similar to codes and Super Codes. For more detail, see the chapter "Family Life" in the full manual.

Network Views



Network Views are a bit more sophisticated than families. They allow you to conceptualize the structure by connecting sets of similar elements together in a visual diagram. With the aid of Network Views you can express relationships between codes, quotations, and memos. PDs, families and even Network Views can also be "nodes" in a network view.

Nodes, Links & Relations

A node is any object that is displayed in a Network View. You can change their look and move them around in the Network Editor.

Relations are link prototypes used to create a link between two codes or between two quotations. An example is the "is-a" (ISA) relation, which is frequently used to link concepts of different abstraction level (e.g., DOG <isa> MAMMAL).

Network View Manager

The Network View Manager contains a list of all previously constructed and saved Network Views. It can be used to create new Network Views, to access or delete existing ones, or to write and edit comments.

Network Editor

The Network Editor displays and offers all editing capability to construct and refine semantic networks. In addition, it allows the visual creation and traversal of hypertext structures.

Relation Editor

When the built-in relations that are used to connect objects in Network Views are not sufficient, you can edit them or create new ones using the Relation Editor.

Link Managers

The Link Managers provide an overview of all code-code links and of all quotation-quotation links you have created.

The full manual has further information on the network function under “The Conceptual Level – Networks”, starting on page 211.

Video tutorials:

- <http://www.atlasti.com/video/article/network-building-i.html>
- <http://www.atlasti.com/video/article/network-building-ii.html>
- <http://www.atlasti.com/video/article/network-building-iii.html>
- <http://www.atlasti.com/video/article/hyperlinks.html>

Analysis



Query Tool

For more complex search requests, the Query Tool is at your disposal. Here you can formulate search requests that are based on combinations of codes using one or a combination of 14 different operators (Boolean, semantic and proximity operators). See the chapter on “Special Tools” in the full manual.

Video Tutorial: <http://www.atlasti.com/video/article/the-query-tool.html>



Super Codes

A Super Code differs from a standard code. A standard code is directly linked with the quotations to which it is associated, while a Super Code is a stored

query, thus provides an answer to a question (in the best case) that typically consists of several combined codes. See the chapter on the Query Tool in the full manual.

The Cooccurrence Explorer

The Cooccurrence Explorer is more exploratory than the Query Tool. Rather than determining the codes yourself, you can ask ATLAS.ti which codes happen to co-occur in the margin area. The output can be viewed in form or a tree view or a table view (CTE: Cooccurrence Table Explorer). The CTE provides frequency of co-occurrence and a coefficient measuring the strength of the relation is calculated. The such a coefficient is only appropriate for some type of data, its display can be activated or deactivated. It is always possible to access the data behind the frequency counts or coefficient.

You find this function under the **Tools** menu.

More information on how the coefficient in the CTE is calculated can be found here: <http://www.atlasti.com/395.html>. In addition, the tool is explained in the manual addendum (V6 stuff).

Codes-Primary Document-Table

The Codes-Primary-Document Table contains the frequency of codes across documents. It can be exported as Excel compatible table. Optional, the table cells can also contain the word counts for the quotations per code across documents. This option can be found under the Codes / Output menu.

	*date of murder	*historic context	*name of suspect	letter authenticity?	letter content	letter date	letter differences	letter recipient	TOTALS
P 3: 1_Jack the Ripper_Story.rtf	13	4	1	2	0	0	0	0	20
P 4: 1_Jack the Ripper_Letters.rtf	0	0	0	5	4	4	1	2	16
P11: 3_Investigation_Suspects.pdf	0	0	27	0	0	0	0	0	27
P12: 3_Criminal Profiling.rtf	0	0	0	2	3	0	5	3	13
P13: 3_The Ripper Revealed.mp3	0	0	0	1	0	0	0	0	1
TOTAL	13	4	28	10	7	4	6	5	77

Team Tools



User Administration

Manage the ATLAS.ti user database through the user administration tool. This is a prerequisite for collaborative work, but is also useful to individual users through personalizing the login or protecting an HU with a password. User Management options can be found under the Extras menu. See also the full manual, the chapter on “User Management”).



Hermeneutic Unit Merger

This tool merges different HUs. A variety of options to control the merge strategy are offered. You find this function under the Tools menu. Further information is provided in the chapter “Merging Hermeneutic Units” in the full manual.

Coding Analyzer

The Coding Analyzer is helpful after merging HUs. It tests for redundant codes, i.e., codes used more than once for data segments that overlap or are embedded in one another. You find it under the Tools menu.

Export

RTF

There are output options for each of the main objects in ATLAS.ti: Primary Documents, Quotations, Codes and Memos. You find it under the respective menus. You can output a list of primary documents along with their comments, all or selected quotations with or without comments, quotations by codes (via the Codes / Output menu), a list of all codes, code-neighbors lists, etc. For memos, you can either output just a list of your memos, the content of memos or the content including the linked objects.

PDF

You can print out coded documents as you see them on the screen with the codes in the margin area. This option will soon also be available for PDF and image files (in a version higher than 6.2.23). You find it under **DOCUMENTS / OUTPUT / PRINT WITH MARGIN**.

XML Generator



The XML generator exports all information contained in an HU in XML format. This universal, open data format allows for a wide variety of possibilities for display, processing, and even integration of your data with external applications. Click on the XML button in the main tool bar to explore the options.

Further detail is provided in the full manual and on our website:
<http://www.atlasti.com/xml.html>

XML Converter

The XML Converter lists HUs saved in XML format and applies so-called "style sheets" (miniature programs written in XSLT) to the XML files. The user may edit the supplied style sheets or add new ones. Just to mention a few outputs that you can create using the XML style sheets:

- A nicely formatted code book (Modern codes (commented only))
- A tag cloud for the elements in the HU (HU tag cloud)
- A list of quotations sorted by documents (Quotations List by Primary Documents)
- The content of quotations sorted by codes (Print Codes in Full)

Use "version 1" style sheets in ATLAS.ti v.5.x and "version 2" style sheets in ATLAS.ti v.6.x.

SPSS Export

You can export your coded data as SPSS syntax file. When executed in SPSS, your quotations become cases and your codes and code families variables. In addition further identifying information in form of variables is provided like the primary document number for each case, start and end position and creation date. These variables allow you to aggregate your data in SPSS if needed.

If you need a less detailed output, see „Code-Primary-Document-Table“. The table provides an output that is already aggregated by primary documents.

Excel Export

The frequency of codes across documents (Codes / Output / Codes-Primary Document Table), the results of the Cooccurrence Table Explorer (Tools / Cooccurrence Tools, and the word frequency count (see Word Cruncher) can be exported as Excel compatible file.

Graphic Files

Network Views can be saved as bmp or emf files: Open a network view and select Network / Save as Graphic File.

HTML Generator

Publishing online or just creating a printout from a project is available with the HTML generator. The results can be viewed platform independent with any Web browser. This option can be found under the Extras menu and is best suitable for exporting your entire project. HTML preferences can be set under Extras / Preferences / HTML Preferences.

Miscellaneous Tools



Object Crawler

With the Object Crawler, you can search all of the parts of your project within ATLAS.ti that contain text. Searches are not restricted to just textual PDs: codes, memos, quotations, all families, code-code links, hyper-links, and the HU can be searched. In addition, the scope of the search can be limited to certain fields. You find the Object Crawler under the Tools menu.

Object Explorer

The Object Explorer displays all the elements of an HU in a strictly hierarchical manner, even if the structures are non-hierarchical, or even cyclic. You find the Object Explorer under the Tools menu.

Main Steps in Working with ATLAS.ti

Data and Project Management

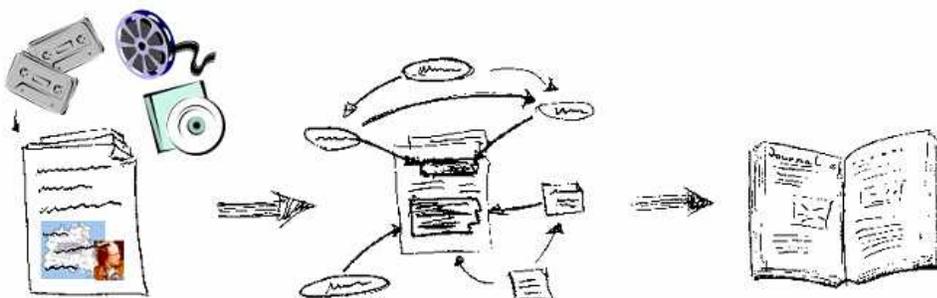


Figure 3: From data to structure

A first important but often neglected phase is data and project management. The first step is data preparation. You find more information on supported file formats in the section “Preparing Documents” in the full manual.

Apart from analyzing your data, you also manage digital content and it is important to know how the software does it (See the section “How ATLAS.ti handles documents” on page 93ff in the full manual. We also advise to read the chapter on project management, p. 270ff).

In order to give you an idea what kinds of issues might come up, here is a list of issues that are important to consider:

- Where will you store your data?
- Do you want to work with external or internal documents?
- Do you want to link your data transcripts to the original audio and video sources? (Version 6 manual addendum)
- Do you think you might have to move your project at some point? (See “Project Maintenance, p. 282ff).

- Should data be edited after it is assigned to ATLAS.ti?

See the section on “Editing primary documents” in the full manual, p. 78ff.)

Also: http://downloads.atlasti.com/library/Friese_2009-09_2.pdf

- Do you need data to be shared among team members?

For further information on team project management see the chapter on “Collaboration” (p. 262ff) and “Merging Hermeneutic Units” (p. 289ff).

- Where and how can you create project backups?

See “Project Maintenance, p. 282ff.)

The One-Folder Setup - For Single Users and Teams

Storing all data files to be analyzed and the ATLAS.ti project file in one folder is the easiest and most flexible way to set up a project. Even when working with video files or other sizable data sets that you may store on an external hard disk or server, you can still use this setup. You just need to save the ATLAS.ti project file (the HU) on the external disk or server as well. This scenario also works well for team projects. Each team member either stores the project folder with all of the data on his or her computer, or the project folder is kept on a server. In the team project case a few more issues need to be considered, like working with user accounts and different sub-HUs. Teams can follow the instructions for the sample data set and then continue to read the additional information for team projects.

Working with Internal Documents (for smaller projects containing only text files)

Using version 6.2 or higher, it is possible to create internal documents. This means you no longer have to worry about document references and document locations. Your ATLAS.ti project consists of a single data file, the HU. This project setup can be used for smaller projects where the data material is comprised of text documents only.

As this function was recently added to the software, it is difficult to know yet how small is small. A test project containing 40 interviews that amounted to a total size of 5.3 MB and 1800 pages of text outside ATLAS.ti, resulted in a coded HU file of 730k. Thus, working with 100 internal files should still be ok.

This approach is also a good option for working with sensitive data material. When saving the HU, the data material is highly compressed and therefore unreadable outside ATLAS.ti. In addition, the HU can be password-protected. This should make unauthorized access reasonably difficult.

This is how it works: you generate a new empty text document within ATLAS.ti and then you copy and paste the contents that you want to analyze into it:

- Open ATLAS.ti and select the main menu option **DOCUMENTS / ASSIGN / NEW TEXT DOCUMENT**.



- Enter a name for the document into the window that opens.
- The document is loaded in edit mode.
- Copy the text you want to analyze and paste it into the primary document.
- Protect the document by quitting edit mode. You will find the edit mode button in the second toolbar below the main menu on the left hand side. Click on the pen and select the option Save and Leave Edit Mode.
- Proceed in the same way with all other documents that you want to analyze.
- Save the HU file.

Make sure that you always create a backup copy of this file and store it at a safe location!

See “Assigning and Handling Primary Documents” in the full manual for further details, and http://downloads.atlasti.com/library/Friese_2009-09_2.pdf from our library. - Video tutorial: <http://www.atlasti.com/video/article/assigning-documents.html>

The Process

There are two principal modes of working with ATLAS.ti, the data level and the conceptual level. The Data Level includes activities like segmentation of data files; coding text, image, audio, and video passages; and writing comments and memos. The Conceptual Level focuses on querying data and model-building activities such as linking codes to networks, in addition to writing some more comments and memos.

Data-Level Work

Data-level research activities include segmenting the data that you have assigned to a project into quotations, adding comments to respective passages (note-making/annotating), and coding selected text passages or data segments, secondary materials, annotations, and memos to facilitate their later retrieval. The act of comparing noteworthy segments leads to a creative conceptualization phase that involves higher-level interpretive work and theory-building.

ATLAS.ti assists you in all of these tasks and provides a comprehensive overview of your work as well as rapid search, retrieval, and browsing functions.

Within ATLAS.ti, initial ideas often find expression through their assignment to a code or memo, to which similar ideas or text selections also become assigned. ATLAS.ti provides the researcher with a highly effective means for quickly retrieving all data selections and notes relevant to one idea.

Read more detail in the section on the "Data Level Basic Functions" in the full manual.

Conceptual Level Work

Beyond coding and simple data retrieval:

ATLAS.ti allows you to query your data in lots of different ways, combining complex code queries with variables, exploring relationships between codes and to visualize your findings using the network tool.

ATLAS.ti allows you to visually "connect" selected passages, memos, and codes into diagrams that graphically outline complex relations. This feature virtually transforms your text-based workspace into a graphical "playground" where you can construct concepts and theories based on relationships between codes, data segments, or memos.

This process sometimes uncovers other relations in the data that were not obvious before and still allows you the ability to instantly revert to your notes or primary data selection.

For more detail, see the section "The Conceptual Level" in the full manual.

General Steps when Working with ATLAS.ti

The following sequence of steps is not mandatory, but describes a common "script:"

- Create a project, an "idea container," meant to enclose your data, all your findings, codes, memos, and structures under a single name. We call this a "Hermeneutic Unit" (HU). A more detailed explanation is provided below.
- Next, assign documents, text, graphic, audio and video files, and Google Earth as so called Primary Documents (PDs) to the HU. The data files become the source material for your project's primary data and can be located anywhere on your computer or a network. For ease of data management, it is however recommend storing all data and the ATLAS.ti project file, the HU, within one folder.
- Read and select text passages or identify areas in an image or select segments on the time line of an audio or video file that are of further interest, assign key words (codes), and write comments and memos that contain your thinking about the data. We call this the Data-Level working phase.
- Compare data segments based on the codes you have assigned; possibly assign more data files to the project.
- Organize PDs, codes, and memos using "Families" (see the chapter on "Family Life" in the full manual for further information).

- Query the data based on your research questions utilizing the different tools ATLAS.ti provides. The key words to look for are: simple retrieval, complex code retrievals using the query tool, simple or complex retrievals in combination with variables via the scope button, the cooccurrence explorer (tree and table explorer), the codes-primary document table, Excel and SPSS export of frequency counts for further statistical analysis.
- Build semantic, prepositional or terminological networks from the codes you have created. These networks, together with your codes and memos, form the framework for emerging theory. Look for the chapter “Network Views” in the full manual.

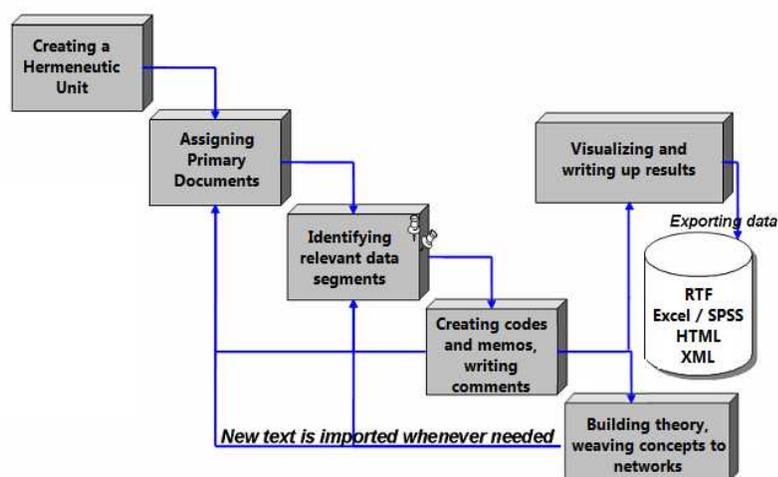


Figure 4: The general process of working with ATLAS.ti

- Finally, compile a written report based on the memos you have written throughout the various phases of your project and the networks you have created and even publish your project as a World Wide Web document or an individual presentation using XML. See “HTML Export” and “Creating Reports with the XML Converter” in the full manual. For your convenience a number of style sheets are already provided. Click on the XML button in the tool bar to explore them.

See the following online resources for examples on how to work with ATLAS.ti:

- http://downloads.atlasti.com/library/Casasempere_2007-07_11.pdf
- <http://www.qualitative-research.net/index.php/fqs/article/viewArticle/1632/3149>
- <http://atlasmalaysia.wordpress.com/2010/09/01/howtolr/>

Project Management

Project Setup

Create a new folder somewhere on your computer / server / external drive. Let's call it your ATLAS.ti project folder.

Move a copy of all data you want to analyze into this new folder. If you have lots of data, you can create sub folders within the main folder where you store the data (see **Figure 5: One-folder setup** and **Figure 6: One-folder setup with sub folders** below).

Open ATLAS.ti. Check the title bar. If the last used HU is open and not a new one, select the main menu option **FILE / CLOSE**. The text in the title bar should read: New Hermeneutic Unit.

Select the main menu option **DOCUMENTS / ASSIGN / ASSIGN**.

A file loader window opens. Navigate to your project folder. Select all documents in the folder. To select all documents, you can use the key combination **Ctrl+A**.

Click on the open button (it will appear in the language of your Windows system).



Figure 5: One-folder setup

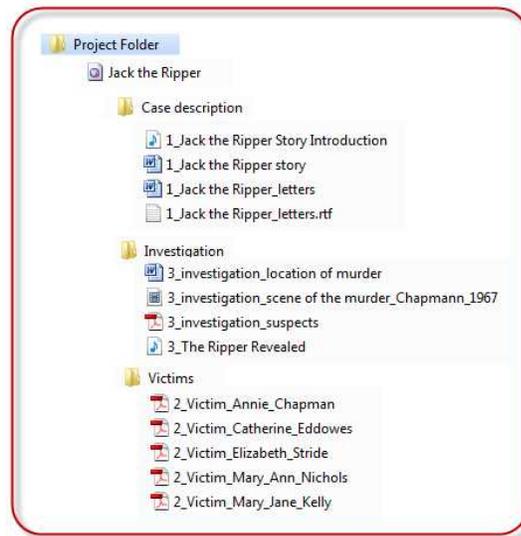


Figure 6: One-folder setup with sub folders

Open the the drop down field for P-Docs and left click each document to find out whether you can load the documents on your computer. Documents are assigned in alphabetical order as listed in the file manager.

In case the alphabetical order is not useful for your purposes, or if you do not assign all the data at once, you can always drag and drop a document to a different location.

It may not always be possible to know from the very beginning what might be a good analytical name - or perhaps you have already created a project before reading these suggestions. In that case, you have the option to rename each primary document (right click on a primary document in the P-Docs Manager and select the option Rename). Renaming a primary document does not affect the data file names on the hard disk. It is only an internal change reflected in the HU. Thus, the entries in the Name column in the P-Docs Managers will differ from the entries in the column 'Origin' when you change the name of a primary document.

Saving the Project and Controlling Project Setup

Open the Primary Document Manager by clicking on the button P-Docs.

Move the slider in the PDoc Manager over to the right so that you can see the column "Origin". As the the Hermeneutic Unit, your ATLAS.ti project file, is not yet saved, the column "Origin" shows a long absolute path reference for each document. In my case:

Leave the P-Docs Manager at this position and proceed to save. Select the main option File / Save (or Save As...)

A window opens where you can specify the location of the HU file and its name. The default location is the TextBank folder. DO NOT save the Hermeneutic Unit there!!!

Navigate to your project folder. The folder appears empty, as only files of the type *.hpr6 are shown. You can see this at the bottom of the window, where there is a field for file types.

Enter a name for the Hermeneutic Unit, your ATLAS.ti project file.

Click on the Save button shown in the language of your Windows system.

Now, take a look at the column "Origin" in the P-Docs Manager again. If you followed the instructions correctly, then all absolute path references are replaced with the entry <HUPATH>.

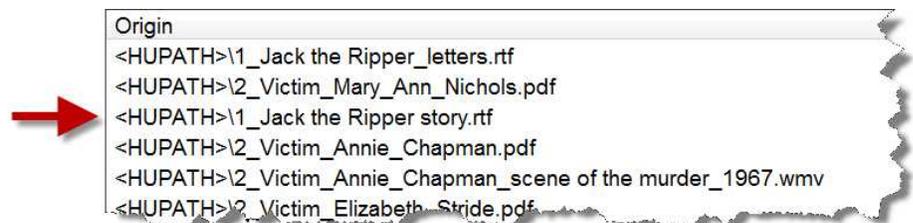


Figure 7: HUPATH entries in the column "Origin" in the Primary Document Manager

Congratulations. That was probably the biggest hurdle in terms of project management in ATLAS.ti. The project can now be moved to any location—you simply have to move the entire folder.

Working in Teams

When working in a team, you can set up your project in the same way as recommended above. What may be different is the location of the project folder, depending on the nature of the project. Basically, there are two possibilities: to store it on a server that each team member can access or, if access to a server is not always possible, team members can also store the project folder on their personal hard disks or external storage device. The one folder setup is the optimal solution for all these scenarios.

In the following section, only the technical aspects of data management are discussed, such as the role and tasks of the project administrator and those of the team members. In addition, members of a team project need to discuss a number of further issues like how to develop the coding system, how to divide the work, how and when to inform the others about what one has done, how to share the analysis, etc.

Project administration

When working in a team, it is best to nominate one person to be the project administrator. Unless everyone's skill level is equal, choose the person with the greatest knowledge of ATLAS.ti and the highest degree of computer literacy. The job of the administrator is to setup the project, to distribute it to team members, to provide instructions for team members, and to collect the sub projects from time to time in order to merge them.

Creating user accounts

If no other user account is created, the super user is the default login and all new entries are stamped with the author name 'Super'. When working in a team, it is clearly important to know who has done what, so not all entries should be stamped 'Super'. Creating a user account and logging in with a personal user name allows tracing the steps of the various team members.

User accounts are best created by each individual team member and not by the project administrator. Here is what you need to:

User information is stored in the program file directory. Therefore, in Vista and Windows 7, you need to start ATLAS.ti as an administrator, or you will not be able to store a newly created user account. Close ATLAS.ti and reopen it by right clicking on the Software icon instead of left clicking. Then choose the option: Run as administrator. A message will pop up asking you to allow this and then ATLAS.ti informs you that you run the software with administrative credentials.

- From the main menu, select **EXTRAS / USER EDITOR**. A window opens showing the three standard users: Admin, guest and super.
- To create a new account, select **EDIT / NEW USER**. Four entry fields pop up, one after the other, asking you to enter an account name, a password, your last name and your first name.
- You can enter a password or leave the field blank. You are not asked for a password unless you specify this in the user.ini file, since password-protecting the user name is only asked for on rare occasions.
- Save the newly created user account by selecting **FILE / SAVE** from the User Editor window. A small window pops up informing you that the user base has been saved to disk.
- Close the user editor.

Logging in

- From the main menu select **EXTRAS / LOGIN**.
- Select your user account. Notice that you are not required to enter a password and that the default setting is "Automatic Login".



Figure 8: Logging in using a personal user account

After logging in, you are greeted by the software. ATLAS.ti will remember the setting and there is no need to log in every time. The automatic login can remain activated as long as the same user always works on the same computer. Only when different people use ATLAS.ti on the same computer at different times does this option need to be deactivated; in this case, the login window comes up each time you launch the software.

Project File and Project Backup

Backup options for the HU

ATLAS.ti offers the following standard backup options:

- creation of an auto recovery file and
- creation of a file with the name "Backup of YourFileName.hpr6"

Auto recovery file

The auto recovery file is created at regular time intervals and restores an HU in case of a crash. If you close ATLAS.ti normally, the auto recovery file is deleted. In case of a crash, however, this file is not deleted and it is available as an alternative next time you start the program. You are probably familiar with this procedure from other applications. If you are sure that you saved your HU shortly before the crash, your own HU file is probably newer than the auto recovery file, which you can then ignore. If you had not saved for a while, you will probably be glad of the auto recovery file.

The name of the recovery file consists of the letters HPR and a computer-generated alphanumeric combination with the file identification *.tmp (e.g. HPR9C3.tmp). The file is saved in the so-called **USER SYSTEM FOLDER**. You can easily access this folder from within ATLAS.ti via the menu option: **EXTRAS / EXPLORER / USER SYSTEM FOLDER**. The time interval and the storage location of the auto recovery file can be set in the preference window.

"Backup of...." file

The "**BACKUP OF... .HPR6**" file is created when actively saving an HU via **FILE/SAVE** or with a click on the floppy disk symbol. The previously saved HU will then be saved as a "backup of...." file and stored in the same folder as your HU. As there is no "**UNDO**" function in ATLAS.ti (or only a very limited one), so saving frequently is a good idea.

When opening an HU file, be careful not to open the "backup of..." file. Because of the naming convention, the "backup of..." file might well be displayed above the actual HU file, as its name begins with the letter B. If you open the "backup of project name.hpr6" file, work on it and save it, the program creates a file named "backup of backup of project name.hpr6".

This is undesirable because (apart from the silly name) you're working on an older version of your project and wondering why something is missing. As a

safeguard, double check the project name in the title bar after opening it, or always open ATLAS.ti first. The default setting is for ATLAS.ti to open the most recently used project, so you can be sure of working on your actual project instead of a “backup of” version.

Customizing HU backup options

Select the main menu option under **EXTRAS / PREFERENCES / GENERAL PREFERENCES**. Select the Storage tab.

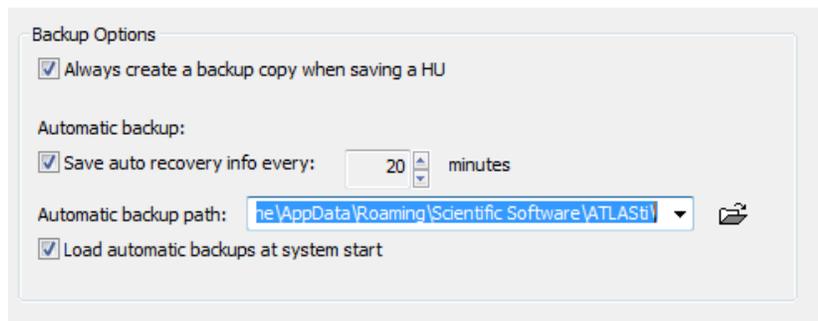


Figure 9: Default settings for HU backups

When you reduce the auto recovery interval to less than 20 minutes, keep in mind that saving the HU in the background uses up computer resources. If you experience problems with the auto recovery backup, check the backup path and make sure you have sufficient space and rights to store files at this location.

Backup or Transfer of a Project via Copy Bundle

The two backup options described above apply only to the HU. If you want to back up your entire project, ATLAS.ti provides a copy bundle function. When using the proposed HUPATH setup for your project, a copy bundle file is more or less the same as a zip file of your project folder. It is one single file that stores all project files in a compressed format. It can also be used to transfer your project to a different location. As it is just one file, you can for instance attach it to an email.

When to create a copy bundle file

We recommend that you create a copy bundle file after each work session as a backup. Store this file at a safe location. You can overwrite the file each time with a new version or keep two or three rolling copies.

A copy bundle file can also be used to “freeze” a certain state of your analysis, e.g. your first stage of coding. When writing the methodology section for your thesis or the research report, you can review the frozen stages to remind you how your analysis progressed over time.

Copy bundle files are also useful for transferring projects between computers or for sending them to others via email. Then you need to unbundle or (as ATLAS.ti calls it) “install” the file (see below). When you use the HUPATH setup, you can also use WinZip or WinRAR to create a compressed file of your project. Use whatever you are comfortable with.

Consider file size when creating copy bundle files

A copy bundle file should not become too large, otherwise it might not be possible to install it. Too large means a few gigabytes in size. Thus, do not include large audio and video files in the bundle. You will have the option to exclude certain items before creating the bundle file.

How to create a copy bundle file:

- Save your HU.
- From the main menu, select Tools / Copy Bundle / Create Bundle. The following window opens:
- If the window appears as shown in **Figure 10: Creating a copy bundle file**, then you can simply click on the Create Bundle button to save the bundle file.

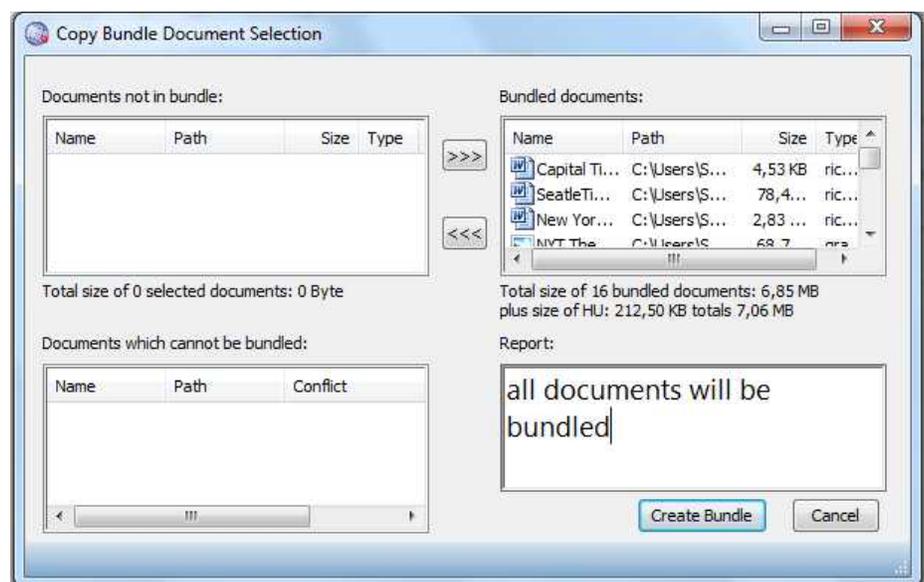


Figure 10: Creating a copy bundle file

- In the upper right section of the window you will see the list of all primary documents that can be bundled.

To remove documents from the bundle, double click on a document to move it to the left hand side. Or select all documents to be removed and click on the button with the arrows pointing to the left.

Next, you need to choose a location for your Copy Bundle file. The default file name is the name of the HU. The extension is .acb, for "ATLAS.ti Copy Bundle." You can give the copy bundle file a different name, e.g. adding the date or a version number to the project name.

After a short time a message pops up letting you know that the Copy Bundle file is ready (Copy Bundle finished and saved).

Do NOT save the .acb file in your project folder. Save it to an external drive, a network drive, in the clouds – anywhere it will be safe. If you store both your project folder and the .acb file on the same hard disk and it fails, you will lose all your work.

Potential problems when creating a bundle file

If one or more documents cannot be bundled, you will see a message (in red) in the report pane. On the left hand side will be listed the reasons why a document cannot be included, like a wrong file path, a missing source file, a wrong version of a source file, or a missing log file. If you want these files to be included, close the copy bundle window and fix the problem(s).

Installing an acb (atlas copy bundle) file

The "unbundling" of a **COPY BUNDLE** file is called installation in ATLAS.ti. Such an installation can only be done with ATLAS.ti. You can double click on an acb file in your file manager but first you need to tell your computer which application is to be associated with such a file. If you don't know how to do that, open ATLAS.ti first and select **TOOLS / COPY BUNDLE / INSTALL BUNDLE**. The "install copy bundle window" opens.

There are two installation strategies to choose from: **MIGRATE AND RESTORE**: Choose **MIGRATE** if you want to transfer a project to another computer. Older files are then replaced with newer files.

Choose **RESTORE** to restore a previous state: for example if you have made a mistake, if a document corrupt, if you have lost your HU, etc. By selecting the restore option, all files are overwritten.

Select one of the two installation strategies.

Next, you need to select a location where you want the HU file to be stored.

If you work with the recommend HUPATH setup, then this will also be the location where all documents can be found after installing the bundle. If you use sub folders for your documents, all necessary sub folders will be created and the documents are unbundled there.

If you store the HU file and the documents at different locations and thus your project setup is based on absolute path references, you can only freely select the location for the HU file. The documents will be unbundled to the locations indicated by the path references stored in the HU. Thus, if you transfer a project from computer A to computer B, ATLAS.ti duplicates the necessary

folder structure so that the unbundled HU can load the documents. Working with absolute path references is not a desirable project setup and should be avoided if possible.

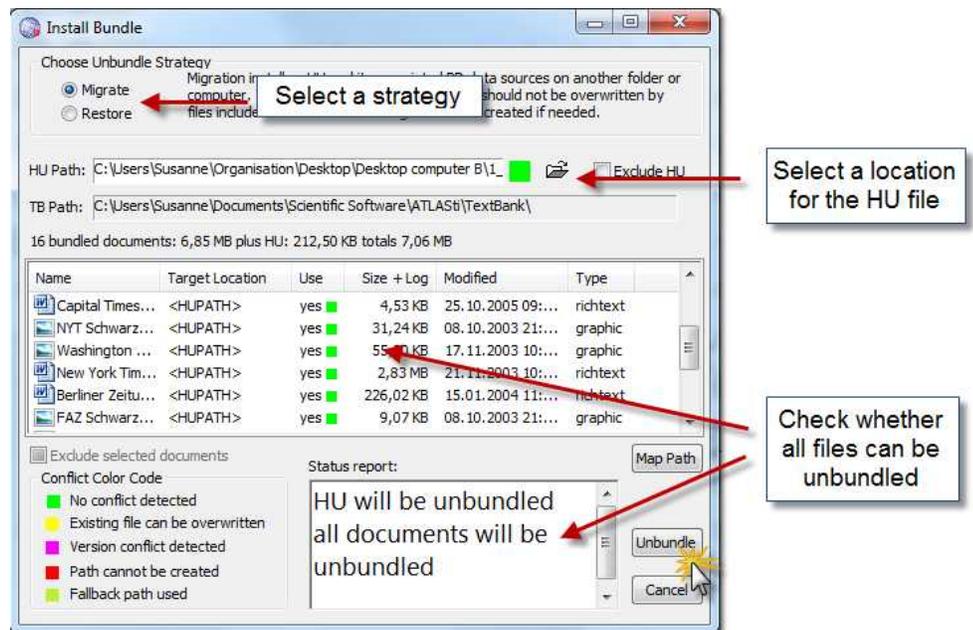


Figure 11: Install bundle window

Choose a location for the HU file in the field HU PATH.

Check the color of the boxes in the column "Use" to see if there are conflicts and correct them if needed. Green and yellow are OK: if you are transferring a project for the first time or into an empty folder, you will see **green** boxes. When migrating a project between computers multiple times, then the boxes are **yellow**. This means the files already exist on the target computer and will be overwritten with newer versions.

If no conflicts are reported and nothing needs correcting, click on the button **UNBUNDLE**.

The acb file is then unpacked, and all the documents will be copied into the corresponding directories. The unpacked HU opens in a new HU editor window.

Possible conflicts

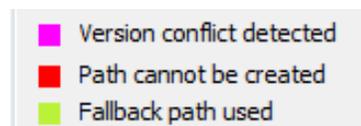


Figure 12: Possible conflicts when installing an acb file

If you see a **pink box**, ATLAS.ti has noticed that there are multiple HUs accessing the same file, but they have different information for this document in terms of file size or date of last saving. Unbundling this document would

mean that the other HUs could no longer access it. It is possible to install such documents in **RESTORE** mode.

If a necessary path does not exist on the target computer, it is usually created by ATLAS.ti. But there are situations when this cannot be done. Then you see a **red box**. This happens, for instance, when the reference of a document points to a network drive like an H: or L: or Z: drive that does not exist on the target computer; or if a user does not have access to a specific drive. In these cases, the path can be mapped. Click on the button **MAP PATH**. Then another window opens. On the left hand side enter the path that produces a conflict; on the right hand side enter a path that exists on the target computer to use as location for installing the file.

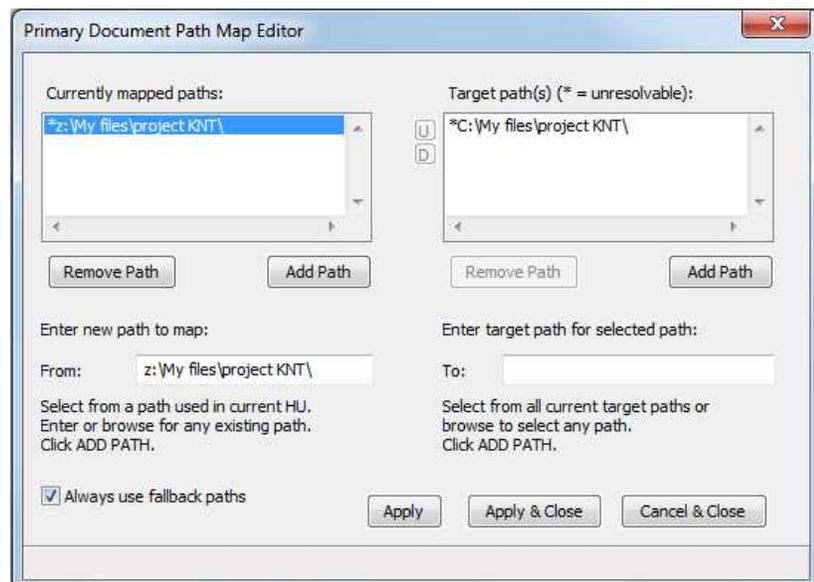


Figure 13: Mapping a path if the location does not exist on the target computer

A **light green** color indicates that the HU can access the document, but not via its original path reference. This happens when an absolute path reference was used in the first place. At some point all documents were moved into the same folder as the HU file, but the original path references were not changed to reflect the new setup (see below, “Modifying the project setup”).

If you do not optimize paths after changing the project setup to the HUPATH, then ATLAS.ti first follows the original path reference. When it does not find the files there, it checks the folder where the HU file is located as an alternative or “fallback” location for the files.

When light green boxes are displayed, you can still unbundle the file. But it is advisable to optimize the path references immediately after unbundling: To optimize the path references, select Documents / Data **SOURCE MANAGEMENT** / **OPTIMIZE PATHS**.

Modifying An Existing Project Setup

In case you had already set up your project before you read the instructions in this manual, below you will find instructions on how to optimize your project setup.

Changing absolute path references to the optimal HUPATH

- If ATLAS.ti is open, close it.
- Create a new folder; let's call it the project folder.
- Move the HU file and all documents that you have assigned to this HU into the new folder. In case you have edited some or all of your primary documents, remember to move the .log files as well.
- Do not move .lok files, delete them!
- Open the HU and check whether you can load all documents.
- If all documents can be loaded, select the main menu option **DOCUMENTS / DATA SOURCE MANAGEMENT / OPTIMIZE PATHS**.
- This creates the HUPATH for each document. You can see this in the P-Docs Manager in the column "origin".

Exchanging doc or docx files with rtf files (changing paths)

Let's say that after reading the section on editing primary documents, you realize that you have assigned doc or docx files rather than rtf files. This means you can no longer modify them. Editing within ATLAS.ti is not possible and editing outside ATLAS.ti gets you into trouble. Or if the doc/docx conversion to rtf does not work properly in your case, this is what you need to do:

- If ATLAS.ti is open, close it.
- Create a copy of your HU file as backup just in case.
- Open your doc or docx files in Word and save them in Word as rtf files. Store them into the same folder as the doc or docx files.
- Open ATLAS.ti and then the P-Docs Manager. Right click on a file and select **DATA SOURCE MANAGEMENT / CHANGE PATH**.
- ATLAS.ti asks you whether you really want to do this as there are currently no problems related to the path reference. Accept the warning. Assuming you use the HUPATH setup, you'll see the following:

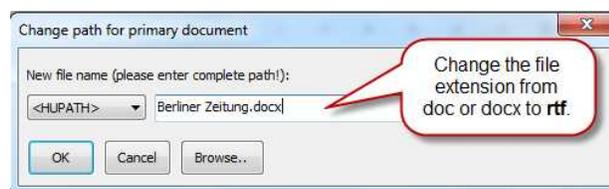


Figure 14: Change the path reference for a document

- Load the document.
- Repeat this for all other primary documents that you want to change.

This process is not always foolproof; sometimes the first half page will be filled with nonsense characters. But this can usually be solved by going into edit mode and deleting those lines.

What You Should Know About Editing

Required data file format

The edit option is only available for text only or rich text documents. As doc or docx files are converted on the fly when loaded, they cannot be edited. PDF documents are write-protected by definition. In ATLAS.ti versions later than 6.2, doc and docx files will be converted to rich text files and stored as packaged files in rich text format. Then editing will also be possible.

What is changed?

If you modify a document that is linked to the HU, then you modify the original document on the hard disk. Thus, the changes are not only visible inside ATLAS.ti. If you open the document in Word or elsewhere outside ATLAS.ti, the changes are also visible.

Mind the following rules!

There are two rules you need to bear in mind when editing a primary document if you do not want to get in trouble.

Rule No. 1 – Always edit within ATLAS.ti!

Editing a document outside ATLAS.ti, e.g. in Word, jeopardizes the congruency of the coding!

Everything you do within the HU can be understood as a layer on top of your document. This also applies to your codings. Each coded segment has a reference pointing to the part of the document that it codes. If you modify a document outside ATLAS.ti, the references may point to the wrong section in your text and if so you will end up with a misaligned coding system.

If you correct a document in a word processor outside of ATLAS.ti, the HU does not know where changes have been made or where adjustments need to

be made to the coded segments. If the HU were to load such a document, the codes would no longer show up where they were supposed to. In order to avoid such a situation, the HU controls the size and modification date of a document before it is loaded. If a mismatch is found, the document is not loaded and you see only a blank HU editor.

As it would be very restrictive if ATLAS.ti did not allow you to rescue such a document, there is an option to reset the last access information and this forces ATLAS.ti to load the document (under Documents / Data Source Management). However, this does not mean that your codes will magically appear where they are supposed to. If you have modified a document outside ATLAS.ti, it is up to you to check all codings and adjust them manually if necessary. But this is better than starting from scratch and recoding the entire document.

When setting up projects using the new data handling methods in versions later than 6.2, you can no longer accidentally edit an assigned file outside ATLAS.ti, in which case, rule No. 1 becomes obsolete.

Rule No. 2: Never delete or modify the auxiliary log file!

To understand the second rule, you need to understand what happens when a primary document is properly edited within ATLAS.ti. As soon as you save your changes, an auxiliary file is created. This auxiliary file has the same name as the original source file that was edited, plus the file extension **.log**. It is stored within the same folder as the original.

Naming convention if file extensions are shown:

Original source file: Washington Post.rtf

Auxiliary log file: Washington Post.rtf.log

The default setting of your file manager is set to "hide commonly known file extensions". This is an unfortunate setting as it can be helpful in a lot of contexts to be able to see the file extensions. You can easily change this setting under the view options in your file manager. In the event that the file extensions are not shown, you will see the following file names:

Naming convention if file extensions are not shown:

Original source file: Washington Post

Auxiliary log file: Washington Post.rtf

You can only see in the column "type" of your file manager that the first one is indeed the rich text document and the second one a text file. The characters ".rtf" are part of the file name and do not mark the file extension.

As they are just plain text, log files are very small, usually just a few k in size. Log files contain information for the HU about how to adjust the codings according to the modifications that have been made. Below you see an example of a log entry:

```
<LOGSESSIONS>
```

```
<LOGS SECS_1901="3243616859" ISODATE="2003-10-14T20:40:59">
```

```

<TransformMod oldSel="1@10,1050@10" newSel="1@10"
afterOldSel="1051@10" beforeOldSel="1052@9"/>
<TransformMod oldSel="1@10,1@10" newSel="1@10"
afterOldSel="2@10" beforeOldSel="1052@9"/>
<TransformMod oldSel="1@10,1@10" newSel="1@10"
afterOldSel="1@11" beforeOldSel="1052@9"/>
</LOGS>

```

As a user, there is no need to understand the content of a log file or even to open it. You just need to know that it is there and that it's best not to touch it. If you delete a log file and it cannot be rescued from the recycle bin, you have lost the coding for this document. The only option that remains then is to disconnect the document from the HU, newly assign and recode it.

By the way, deleting a log file is the one single activity that will cause permanent data loss (apart from losing your HU file of course). All other problems related to data management can generally be solved.

As for rule No. 1, if setting up projects using the methods of data handling that will be implemented soon, you no longer have to worry about log files as they are no longer visible and users cannot touch them. Rule No. 2 then also becomes obsolete.

How to edit

By default, all documents are loaded in write-protected mode. To enter edit mode,

- Load a primary document that can be edited. When loading such a document, a second toolbar appears underneath the main toolbar.

Either select the main menu item **EDIT/DOCUMENT ACCESS/ENTER EDIT MODE** or click on the edit button in the second toolbar.



- All edit options in the second toolbar can now be used. Try out the various options like enlarging or reducing the font size, changing colors, putting text into bold or italic letters, using the highlighter, etc.

To exit edit mode:

Click on the edit button in the second toolbar and select Save and Leave Edit Mode. This is the moment when a log file is created.

If you edit a file multiple times, more information is written into the already existing log files. Thus, there will always only be one log file per edited document.

Editing primary documents in team situations

If you want to allow your team to edit primary documents, you add an additional layer of complexity to your project. It is possible, but it should be managed with care. When your team accesses the project folder containing the

data and the HUs on a server, then ATLAS.ti controls the process. Thus, you do not need to do anything more than instruct each team member to leave the log files where they are, and that they should not modify, delete or move them. If your team members are working at different locations, then editing needs to be tightly controlled.

Editing in teams using a server-based project setup

Using such a setup means that every team member is working within his or her own HU, but all are accessing the same data. Let's assume Coder A discovers a typing error in P7. He enters edit mode to correct the error. Coder B discovers the typo at about the same time and also wants to enter edit mode. The software will tell her that she currently cannot enter edit mode as Coder A's computer is currently editing the document. Half an hour later she tries again to edit P7. This time she sees a note ordering her to synchronize her HU. She needs to accept this message in order to load P7. Then her HU file is synchronized. This means that the quotation references in her HU are adapted to the changes made by Coder A. All other users must synch their HU files as well. This is done latest by the software while the project administrator is merging the various sub-HUs into the MASTER HU. For all these processes, the log files of all edited documents are needed.

Editing in teams when working at different locations

If editing is allowed, you need to decide whether documents should only be edited at one central location by the project administrator, or whether each team member has the right to edit a specific set of documents.

If the project administrator only is allowed to edit

With this option, it is best to edit documents after merging the various sub-HUs. For the next round of coding or work on the data, it is not sufficient to send the new MASTER HU to each team member, you need to send or upload the entire project folder containing the edited documents and the log files. It is best for each team member to replace the entire project folder with the MASTER version.

If each team member is allowed to edit specific subsets of documents

This option requires a strict agreement about who is allowed to edit which subgroup of documents. If the same document is edited at two locations, you will lose one version of it.

Let's assume that the project contains 40 rich text files and there are four team members. The team has agreed on the following:

- Coder A is allowed to edit PD 1 to PD 10
- Coder B is allowed to edit PD 11 to PD 20
- Coder C is allowed to edit PD 21 to PD 30 (Coder C is also the project administrator)

- Coder D is allowed to edit PD 31 to PD 40
- When it is time to merge the various sub-HUs,
- Coder A sends the project admin his HU file "*project name_coder A.hpr6*" and the rtf and log files for PD1 to PD10
- Coder B sends the project administrator her HU file "*project name_coder B.hpr6*" and the rtf and log files for PD11 to PD20, and
- Coder D sends the project administrator his HU file "*project name_coder D.hpr6*" and the rtf and log files for PD 31 to PD40.

The project administrator copies all four sub-HUs into one folder, along with all 40 rtf files and all 40 log files. Then she opens each sub-HU and synchronizes it. ATLAS.ti will recognize modification when merging HUs and goes through the synchronization process, but we recommend to update each HU and check it yourself before beginning the merge process.

Best practice rules for editing primary documents

- Documents must be saved and assigned as text (*.txt) or as rich text (*.rtf) files.
- Never open or modify a file that is assigned to an ATLAS.ti project in Word or any other application outside ATLAS.ti.
- Never change or delete log files.
- For teams: Discuss the necessity of editing primary documents. If editing is allowed, discuss the two rules of editing with each team member and decide who is allowed to edit what.

Basic Coding Techniques

In ATLAS.ti you can often use a number of different routes to achieve the same result. Once you see that you can use any one of three options - the main menu, the context menu or the buttons on the toolbar - you can use whichever suits you best.

Open Coding

You may have heard or read about open coding related to grounded theory. In ATLAS.ti open coding simply means creating a new code. And this is how you do it:

Load a text documents and select a segment with the mouse and right click on the highlighted area.

Select the option **CODING/OPEN CODING** from the context menu. OR: Select **CODES/CODING/OPEN CODING** from the main menu. OR: Select the **OPEN CODING** button from the vertical toolbar on the left hand side of the screen (see left).

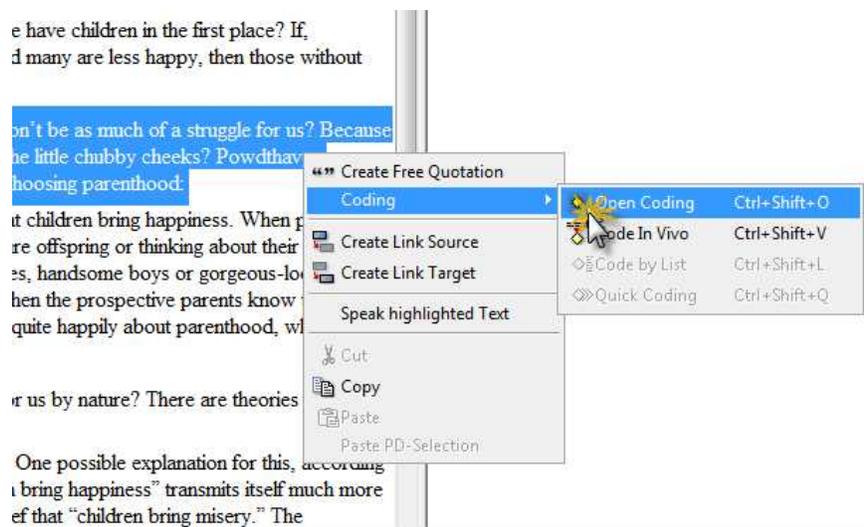


Figure 15: Selecting the Open Coding option via the context menu

Take a look at your screen. With one click, you have created four new entries:

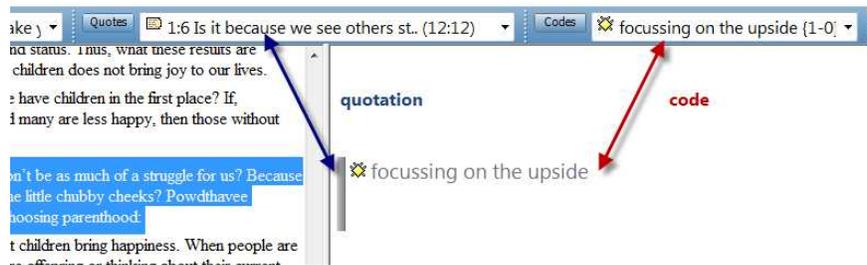


Figure 16: HU editor after setting a first code

You have created your first quotation and code. Each is displayed both textually (in the respective drop-down list) and graphically (in the margin area). The separation of quotation and code has a number of advantages. As they are independent objects, you can comment on each code but also on each quotation. Quotations cannot only be linked to codes, but also to each other and to memos. This is a prerequisite for the hyperlink function discussed in the respective chapter in the full manual. It allows you to work directly at the data level without necessarily using codes.

Meaning of colored bars in the margin

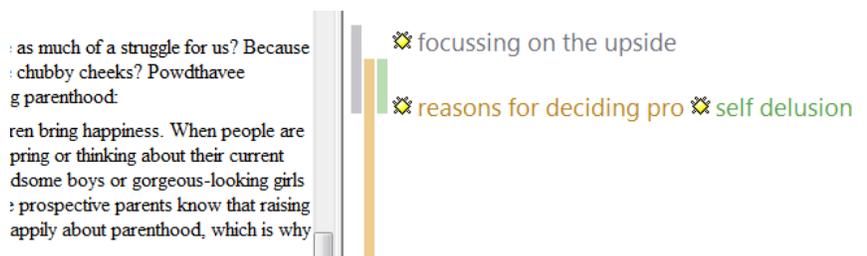


Figure 17: Meanings of coloured bars in the margin

As you can see in **Figure 17: Meanings of coloured bars in the margin** overlapping codes are displayed in different colors in the margin area. These colors help you to distinguish which bar belongs to which code word. If you were to add even more layers, the next two layers would be displayed in violet and blue. After that, silver is used again. The colors do not contain any information about the different code levels in the sense of higher or lower ranked categories. When you delete a quotation, the colors may change.

It is possible to set your own colors for codes, but not for the bars marking the length of a quotation (see below “Coloring codes”).

Coding via drag & drop

At the beginning of the coding process, it is normal to generate a lot of new codes. But after a while you will find similarities and repetitions in the data and want to apply codes that already exist. The easiest way is to code from the Code Manager via drag & drop.

Open the Code Manager by clicking on the Codes button next to the list field for codes, or select **CODES/CODE MANAGER** from the main menu.

Change the view to **SINGLE COLUMN VIEW (VIEW/SINGLE COLUMN)** if not already activated.

Highlight a text passage and select a code from the Code Manager. Hold down the left mouse button and drag the code over the windows splitter and drop it on the other side.

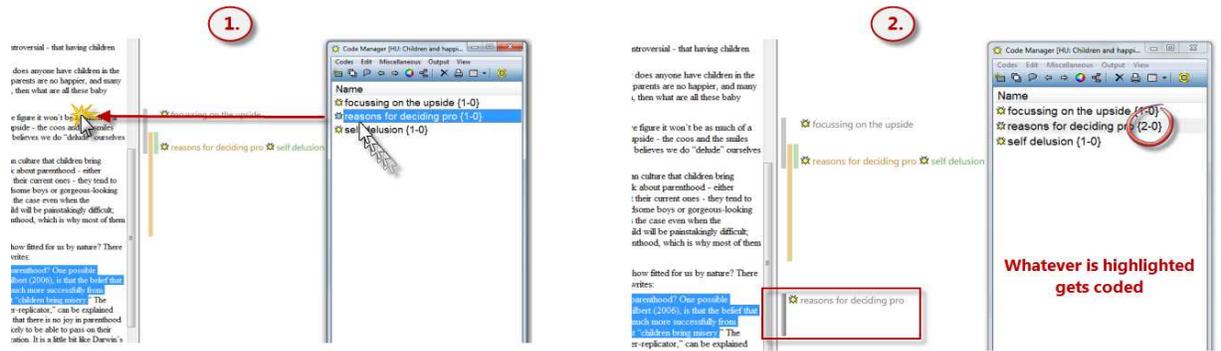


Figure 18: Drag & Drop coding

There is no need to drop the code into the highlighted area. It just has to be dropped somewhere on the left hand side as shown in **Figure 18: Drag & Drop coding**. Whatever is highlighted gets coded.

Replacing a code

If you want to exchange a code for an already coded segment, then the easiest way is also to use drag & drop. This time, however, you cannot drop the code just anywhere; you have to drop it exactly on top of the one that you want to replace.

Modifying the length of a quotation

Modifying the length of a quotation is also quite a common procedure. Maybe you discover that a chosen segment is too large or that you forgot something and need to extend the length of a quotation. Both ways of modifying are possible.

Activate the quotation that you want to modify, e.g. with a click on the code word in the margin. The currently activated quotation is displayed in the quotation drop-down list.

To enlarge a segment



Highlight an extended area by simply overwriting the existing one. Then click on the button **REVISE QUOTATION SIZE** in the vertical toolbar (see left).

To decrease the size of a segment

As you cannot select a segment within an already highlighted area, you first need to “erase” the highlighting by clicking above or below it.

Select the smaller area that you want. Then click on the button **REVISE QUOTATION SIZE** in the vertical toolbar.

Unlinking a code

Just as you can erase a pencil mark in the margin of a paper document, you can “erase” a code in the margin area on screen as well. The digital equivalent is called unlinking. It is mostly used when a segment is coded with more than one code.

To unlink a code, right click on the code in the margin area and click on the **UNLINK** option.

When you unlink a code from a segment that only has one code, the bar remains in the margin. If you want to “erase” both the code and the quotation, you need to proceed as explained below.

Removing a coded segment

Mark the coded segment to be removed, e.g. by clicking on the code in the margin.

Move your pointer over the highlighted quotation and select **DELETE** from the context menu.

A message pops up asking you to confirm that this quotation and associated links should also be deleted. Click OK.

Note that removing a coded segment does not delete the text or other data material that you have coded. The quotation is an object stored in the HU file. You can think of all objects stored in the HU as a layer on top of your data material. The HU only accesses the data via a reference and loads it into the HU editor. The data itself is not touched.

Writing comments for coded segments

If you notice something interesting while coding and you want to write it down, use the quotation comment field for it.

- Right click on the highlighted quotation and select the option **EDIT COMMENT** from the context menu.
- An editor pops up. Write a comment on the selected data segment.
- Save your comment by clicking on the **ACCEPT** button and close the editor.

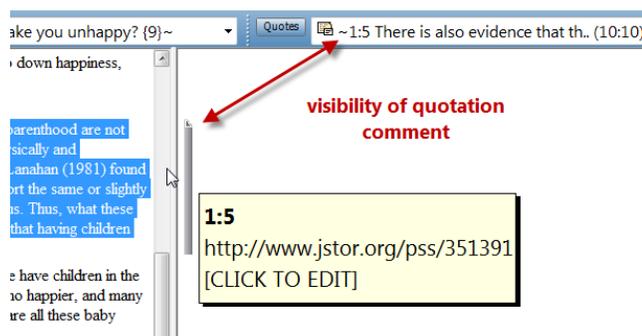


Figure 19: Drag & Drop coding

Quotation comments are visible in the bar in the margin area and by the tilde (~) sign in front of the quotation name in the quotations list.

Further coding options provided by the Code Manager

There are a number of other options in the Code Manager, which you can access via the menu and toolbar or the context menus. For instance, you can create new codes, rename, delete or merge codes.

Creating a new code



Click the **CREATE A NEW ITEM** button (see left). Or select **CODES/CREATE FREE CODE** from the Code Manager menu.

Enter a code name and click OK. Frequency and density are both 0 as this code is not yet linked to anything.

Renaming codes

The renaming option is a global option. This means that renaming a code word in the Code Manager affects all coded segments that use this code.

Mark a code word in the Code Manager, right click and select **RENAME** from the context menu. OR: Use the 'in-place' way of renaming entries that you may know from working with the Windows file manager.

Coloring codes



If you want to color your codes, select a code in the Code Manager and click on the rainbow colored circle in the tool bar.

To make code colors visible in the margin, right click on a white space in the margin area and select the option **USE OBJECT COLORS**.

In order to still be able see which code label belongs to which quotation bar, a small bar colored in the same color as the quotation bar is shown in front of the code label. The code label shows the user-defined color.

Deleting a code

The delete option has global effects, it removes a code from the entire HU and from everywhere in your primary documents, code families or network views:

Right click on a code and select **DELETE**. A message pops up:

These items are linked to code "[code name]": [x] quotations. Continue with deletion?

Confirm by clicking YES.

An other message pops up asking you whether the linked quotations should also be deleted. If you don't need the quotations any longer, click the Yes button.

Merging codes

The Merge Codes function can be used to combine two or more codes with each other. This is a common procedure when you begin to clean up your code list after initial coding, or when you work in a team and merge sub projects.

Begin with the code whose name you want to keep. Right-click and select the **MERGE CODES** option from the context menu.

A small window pops up listing all other available codes. Select one or more codes from this list and click the OK button. To select more than one code, hold down the Ctrl key.

A window pops up, telling you that the selected codes have been merged into the target code and that a comment leaving an audit trail of the merge process will only be entered if the codes already had a comment before merging.

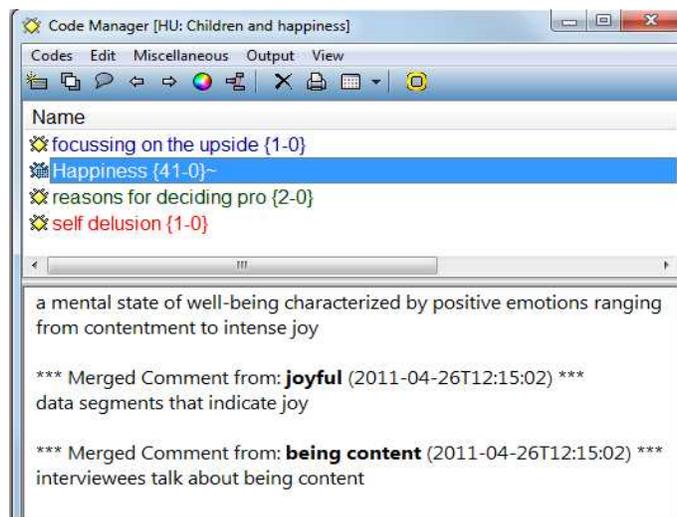


Figure 20: Combined comments after merging leaving an audit trail

Figure 20: Combined comments after merging leaving an audit trail shows the comment for the code "Happiness" after merging it with the two codes "joyful" and "being content".

Writing code definitions

Comments can be written into the white field below the windows splitter. When entering a comment (for codes this is in most cases a definition, a coding rule and possibly a sample quote) the commented object is marked by a tilde (~).

When you write a comment for one of your codes and you are finished, click on another code: the definition is saved and you see the tilde after the code. If you close the window immediately after writing the definition, a message pops up asking you whether you want to save the comment.

Coding other media types

Coding a PDF Document

Coding a PDF document is essentially the same as coding *.rtf, *.doc or *.txt files. Selecting a text segment in PDF documents, however, requires a bit of practice. If you place the cursor too far to the left of the text, you will select only a rectangular graphical image instead of the actual text segment.

To select a string of text, place the cursor directly to the left of the first letter.

To select a graphic segment, draw a rectangle with your mouse.

Use any of the coding techniques described above, e.g. open coding or coding via drag & drop from the Code Manager. When using drag & drop coding, you need to drag the code directly onto the marked PDF segment.

Coding an Image Document

Load an image document and select a rectangular area. Proceed to code it as has been described for text segments.

To change the display type, right click on the image quotation and select the option **SELECTION-DISPLAY TYPE/INVERTED AREA**.



Figure 21: inverted display for quotations

Coding audio and video files

Coding audio and video files involves two steps. First a quotation needs to be created, and only then can you link a code to it.

Step 1: Create an audio or video quotation

Load an audio or video document.

- In addition to the Code Manager, open the Quotation Manager. Re-size the two windows, so they fit next to each other. Move the time line to a convenient position and expand it so it covers the full length of the screen.
- Set a filter to the currently selected document so that the Quotation Manager only shows the quotes of the video you are working on.
- From the main menu, select **QUOTATIONS/FILTER/SELECTED PD**. The drop-down list and manager show a pale yellow color, indicating that a filter is set.

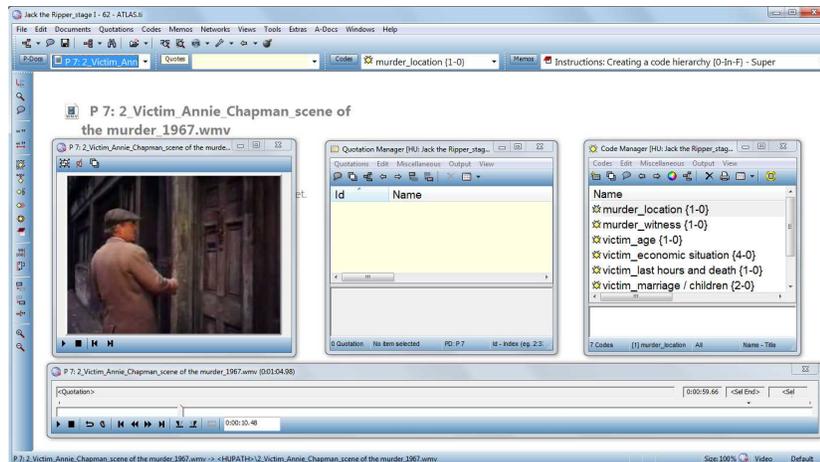


Figure 22: Preparing the screen for coding a video file

Currently the time line cannot be scrolled. Thus, the entire video needs to fit onto it. Therefore the recommendation is to cut your audio or video files to a length of about 20 minutes. Otherwise, the visual presentation of the quotations becomes very tiny and difficult to set.

In version 7, ATLAS.ti will offer a margin area as already available for most other data file formats. Then the above described coding procedure can also be use for coding audio- and video files.

- To create a quotation, move the cursor to a start position on the time line. Click the button Mark selection Start.
- Position the cursor at the end point of the quotation. Click on the Mark selection End button.
- Then click on the Create Quotation button.

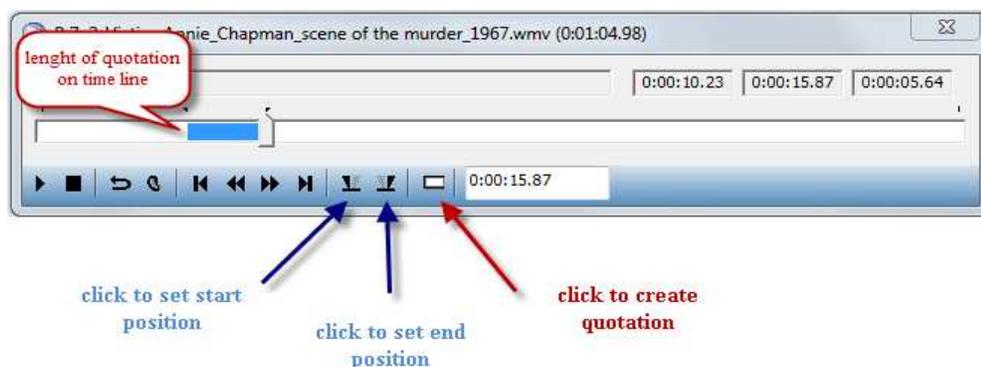


Figure 23: Creating a video quotation

A new quotation is listed in the Quotation Manager. The default name for audio and video quotations is the document name. Each quotation can, however, be renamed.

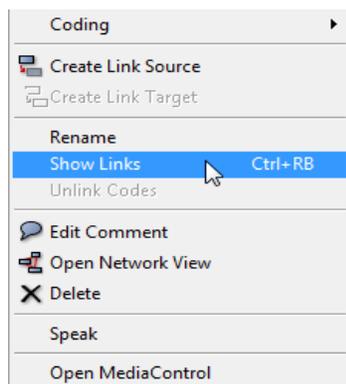
Step 2: Code an audio or video quotation

To code the video quotation, drag and drop a code from the Code Manager onto the quotation in the Quotation Manager (or vice versa). You can also right click on the quotation in the Quotation Manager and select other coding options from the context menu.

When applying a code, the quotation count behind the code name increases by one. This is all you can see, as there is no margin area yet.

Reviewing audio and video quotations

You can review video quotations via the Quotation Manager or after retrieving them via their codes: Double click on a code in the Code Manager. OR: Right click on the white background. There you will find the option: **SHOW LINKS**.



Unlinking codes

To unlink a code from a video quotation, right click on the white background. Then select the option **UNLINK CODES**.

Modifying the length of a video quotation

To modify a quotation boundary, activate a quotation in the Quotation Manager. Then reset either the start or end position. You can use the right and left arrows on your keyboard to adjust the length of a quotation by frames.

To modify the length, click **Ctrl + the CREATE QUOTATION** button.

Resetting the filter

To reset the set filter, select the main menu option **EXTRAS/RESET ALL FILTERS**.

Describing video quotations to improve outputs

As mentioned above, the name of a video quote is its data file name. If you want to add further information, you have two options: renaming the quotations and adding a comment.

Renaming video quotations and creating text output

In the process of creating video quotations, rename them so they can serve as titles for your video segments. To do so, right click on the quotation name in the Quotation Manager and select the **RENAME** option.

If 30 characters are not enough for quotation names, you can extend the number:

From the main menu, select **EXTRAS / PREFERENCES / GENERAL PREFERENCES / GENERAL**. At the bottom right, you will find the option: **LIST NAME SIZE FOR QUOTES**.

Increase it to the desired number of characters; 80 characters are probably enough for short titles.

This allows you to create a meaningful text output of coded video segments. To create such an output, select a code in the Code Manager. Select the option **OUTPUT/QUOTATION LIST FOR SELECTED CODE(S)**.

The output will show an overview of all the titles you have created for your video (or audio) segments. Plus, it provides the position within the audio or video file.

Changing between time and frame references

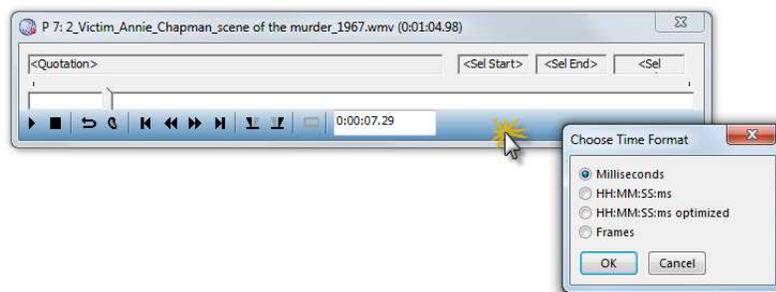


Figure 24: Changing the time format for video quotations

If you prefer time rather than frame settings for quotation references, right click the bottom right hand side of the time line and select **CHANGE TIME FORMAT**. Then a small window pops up showing you the various options available.

Making use of quotation comments

In addition to using quotation names for titles, you can add a description for each video quotation in the comment field. When you output quotations and there is at least one comment, ATLAS.ti asks you whether comments should be included in the output. As above, you can use the Quotation List output option from the **CODES/OUTPUT** menu.

Family Life

Just as codes describe sets of quotations, families cluster Primary Documents, Codes, and Memos. One important objective is to manage large amounts of objects by classifying them into subsets, e.g., all *theoretical* codes, all PDs from *respondents of a certain age group or location*, all memos related to a *theme*, etc.

Purpose of Creating and Working with Families

In the following, the role of families as variables, super families and for controlling the HU merge procedure are introduced.

While families are used to classify a group of objects, the objects they classify can be members of more than one family.

Unlike Network Views, which can contain objects of different types as nodes, families can only contain one type of object. For example, a code can never be a member of a memo family.

Partitioning objects into families reduces the number of "chunks" requiring the researcher's attention. Families are often used for filtering, and when formulating queries in the Query Tool (see "Creating a Query with the Query Tool" on page 80).

Example: When conducting an interview study with respondents from various backgrounds and locations, **PD families** can be created to classify the respondents into:

- Female / Male
- Location A, Location B, Location C
- Age Group 1 (20-30), Age Group 2 (31-40), Age Group 3 (41-50)
- Blue-collar worker, White-collar worker, Management, etc.

Families make effective user-defined filters. For example, you can filter PDs to only view female respondents.

In the Query Tool, PD families can be used to restrict the scope of the search. For example, you can ask for all quotations coded by Code_A and Code_B that occur in documents of white-collar female respondents from location B.

The **PD-Family table** function provides a convenient way to import and export variables (see below for a detailed explanation).

Code families can be used to loosely group codes that belong together. Other than in Network Views where specific relationships between codes need to be defined, in code families it is not necessary to specify the ways in which codes relate to each other.

Use **memo families** to sort, filter, and organize your memos.

Super Families

Super Families are combination of other families (including other Super Families). You can build complex families incrementally from existing families using a set of powerful Boolean operators. From a technical perspective Super Families function just like Super Codes (see “Super Codes” on page 84).

Common Procedures

Although the handling of families and their members is identical, their usage differs between types of families. In the following, the general aspects of and procedures for working with families are described. Thereafter, a description of specific characteristics of the different family types follows.

All procedures for displaying, editing, and creating families are found in the menus of their object type (i.e., under the Documents, Codes, and Memos menus).

The Family Manager

Using the Family Manager you can create, edit, and delete families. You can add and remove items ('family members'), write comments concerning a particular family, or set a family as filter.

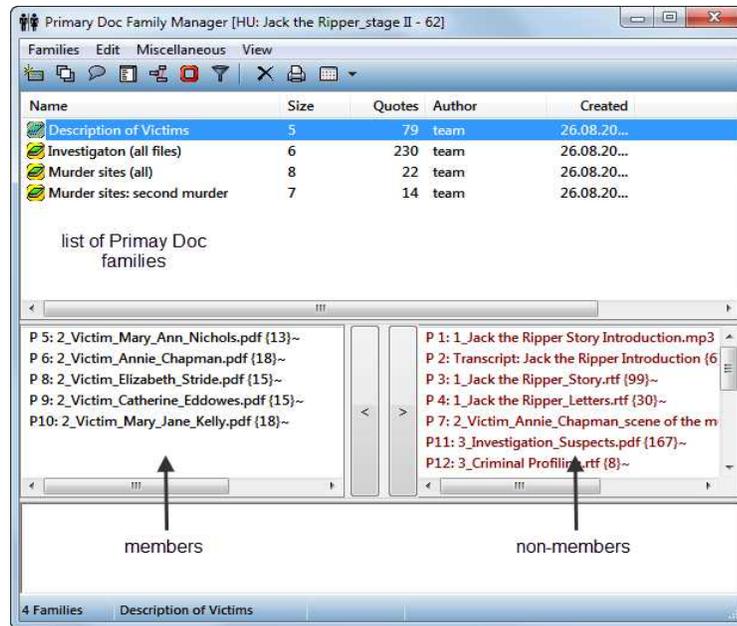


Figure 25: Primary Document Family Manager

Family Managers and the procedures described in the following are the same for all family types.

Components of the Family Manager

The Family Manager's main pane lists all families for the specific object type.

- The window displays the name, (member) size, author, and creation and modification dates (not currently visible). The columns can be used to sort the families according to these criteria by clicking the column header.
- The left list below the family list displays the "family members" already assigned.
- The two buttons between the list panes are for assigning or removing items from the selected family.
- The right list displays all items not currently assigned to the selected family.
- The comment area contains an optional description for the family.

To Open a Family Manager



Select **EDIT FAMILIES / OPEN FAMILY MANAGER** from the **DOCUMENTS, CODES, OR MEMOS** menu.

The **EDIT FAMILIES** submenu is available from the Documents, Codes and Memos menu.

The Family Manager is also available by clicking the Family button in the corresponding Object Manager (see left).



Creating Families

Before using a family, it must first be created in the Family Manager.

- Open the Family Manager for PDs, codes, or memos.
- Click the button **CREATE A NEW ITEM** or select the menu option **FAMILIES / NEW FAMILY**.
- Enter a name when prompted and click **OK**. If you enter the name of an already existing family, you will hear an error sound. A message pops up letting you know that the entered name is not accepted.

Now you can add members and write a preliminary comment describing the family.

The number of items in a family is displayed behind the family's name in parentheses.

Adding Members

After a family is created, adding members is often the next logical step. However, the assignment and removal of items can be done at any time during the life cycle of a family. To add new items to a family:

- Select a family. If you have just created the family, it is already selected.
- Select one or more items in the list pane on the right hand side.
- Click the **Add Items** button to make the selected items members of the selected family.
- If you want to add one item at a time, you can simply double-click an item.

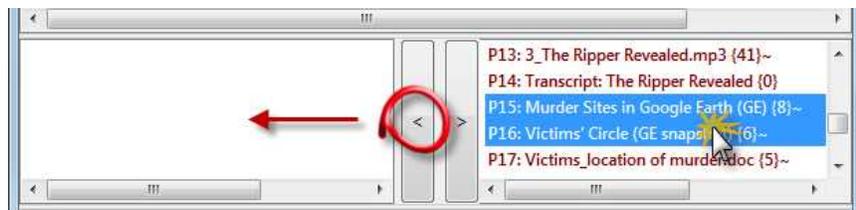


Figure 26: Adding members to a family

Watch the member list being populated with the items you have just assigned.

Another way to add members is to drag them from an Object Manager, the Object Explorer, or the margin area into the member's pane.

Removing Members

- Open the Family Manager for the relevant object type.
- Select a family.
- Select one or more items in the list pane for members.
- Click the Remove Items button to remove the selected items from the selected family. The items are only deleted from this family and not from the system.
- If you want to remove one item at a time, you can simply double-click on each item.

If you *delete* objects that belong to a family somewhere else, they will be removed automatically from all their hosting families.



Using Families as Filters

Access the Filter Options via the Main Menu

One added value of families is that you can use them as filters. For example, if you have created a code family including only 'Abstract' codes, you can use this family as a filter to reduce the total number of codes displayed in the drop-down list in the Code Manager and the margin area.

Filter Items using the Family Manager

- Open the Family Manager.
- Double-click a family. Watch how the display in the Object Manager and the margin area changes to display only items that are members of the selected family.

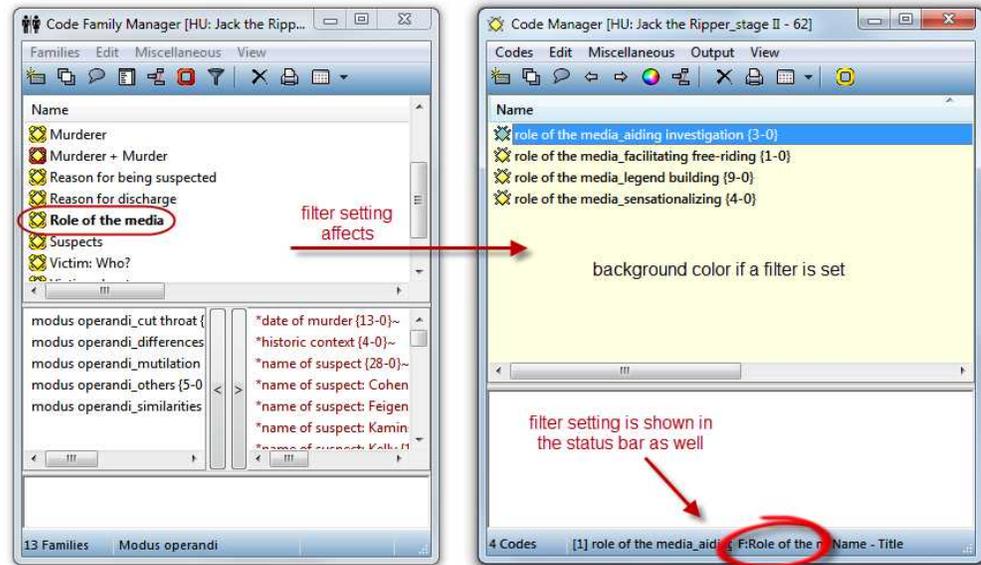


Figure 27: Double clicking on a family in the family manager activates a filter

If a family is activated as a filter, it is displayed in bold letters in the Family Manager. In the figure above, the cody family “Role of the media” has been set as filter. In addition, the background color in the Object Manager and drop-down list changes. The active filter is also indicated in the filter field of the status bar in the Object Manager.

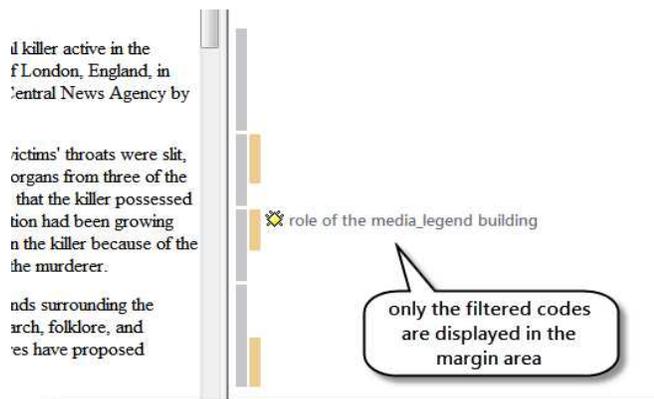


Figure 28: Effect of a code filter in the margin area

To take the filter out double-click on the family again, or select **EXTRAS / RESET ALL FILTERS** from the main menu. A third option is to double-click on the filter field in the Object Manager while holding down the **Ctrl**-key.

Filters do not affect Network Views. Even if you have set a filter, Network Views still display all their nodes.

Removing Families

- Open the Family Manager for the relevant object type.
- Select the family to be removed.
- Click the **Delete** button or select menu option **FAMILIES / DELETE FAMILY**.



Removing a family does not remove any of the contained items.

Working with Variables: Primary Document Families

PD families as variables can be used in queries and SPSS jobs.

Use PD-Family tables to assign PDs and variables at the same time.

Along with sharing all the characteristics of code and memo families, PD families have some additional characteristics.

PD Families can be used to define the scope of a query when used as global attributes supplementing codes. For instance, if the PD families "female" and "age group 1 (21-30)" were assigned to a number of interviews, one can then formulate queries like: "Show me all quotations from interviews with females between the ages 21 to 30 coded with "coping" or "power." For a step-by-step instruction, see "Restricting Code Queries to Sub Groups " on page 87.

In SPSS jobs, PD families are a way to aggregate some of the data.

PD-Family tables are an efficient means to create families and to assign PDs to their respective families. You can also use them to assign PDs and to generate variables in one step.

PD-Family Table

PD-Family Tables can be exported or imported as tab-delimited (XLS) or as *comma/semicolon separated value* (CSV) files. All three formats can be read by Excel™ as well as OpenOffice Calc. Below you see an example of an exported file. The gray colored columns have been added for readability. Below each

documents	Name	Path	@Origin	#Gender	#Location	#Age group 1	#Age group 2	#Age group 3
P 1	Case8_F	C:\Users\generic\Example Projects\ <HUPATH>\Christine_44.rtf		female	Berlin	21-30	0	0
P 2	Case6_F	C:\Users\generic\Example Projects\ <HUPATH>\Chris_88.rtf		female	London	21-30	0	0
P 3	Case10_F	C:\Users\generic\Example Projects\ <HUPATH>\Donna_78.rtf		female	New York	21-30	0	0
P 4	Case11_F	C:\Users\generic\Example Projects\ <HUPATH>\Dorothy_69.rtf		female	Tokyo	21-30	0	0
P 5	Case50_M	C:\Users\generic\Example Projects\ <HUPATH>\T_Mr.Leslie_63.rtf		male	New York	0	31-40	0
P 6	Case2_F	C:\Users\generic\Example Projects\ <HUPATH>\ANGELA_372.rtf		female	Tokyo	0	31-40	0
P 7	Case3_F	C:\Users\generic\Example Projects\ <HUPATH>\Ann_C347.rtf		female	Berlin	0	31-40	0
P 8	Case4_F	C:\Users\generic\Example Projects\ <HUPATH>\Betina_103.rtf		female	Tokyo	0	31-40	0
P 9	Case54_M	C:\Users\generic\Example Projects\ <HUPATH>\T_Robert_244.rtf		male	London	0	0	41-50
P 10	Case15_F	C:\Users\generic\Example Projects\ <HUPATH>\Heather_170.rtf		female	New York	0	0	41-50
P 11	Case20_F	C:\Users\generic\Example Projects\ <HUPATH>\Joan_53.rtf		female	Tokyo	0	0	41-50
P 12	Case22_F	C:\Users\generic\Example Projects\ <HUPATH>\Beverly_116.rtf		female	Berlin	0	0	41-50

Figure 29: An Exported PD Family Table

column header and content is explained.

This data exchange format can also be used to conveniently assign a large number of PDs from generic lists.

Documents: The PD sequence number.

Name: The name of the PD.

Path: The resolved path of the PD's data source, i.e., the actual location of the data source at the time the table was exported.

@Origin: Contains the original path reference that was valid at the time the document was assigned to the HU. May contain special paths (e.g., <HUPATH>). This attribute can only be handled intelligently when importing such a table with ATLAS.ti. Other applications may simply ignore it and use the path attribute instead.

All following columns: Families.

Type of Variables

Within ATLAS.ti, all families, when interpreted as variables, are dichotomous because an item may or may not belong to a specific family, thus it is encoded with either 0 or 1 / applies or does not apply.

documents	Name	Berlin	London	New York	Tokyo
P 1	Case8_F	1	0	0	0
P 2	Case6_F	0	1	0	0
P 3	Case10_F	0	0	1	0
P 4	Case11_F	0	0	0	1
P 5	Case50_M	0	0	1	0
P 6	Case2_F	0	0	0	1
P 7	Case3_F	1	0	0	0
P 8	Case4_F	0	0	0	1
P 9	Case54_M	0	1	0	0
P 10	Case15_F	0	0	1	0
P 11	Case20_F	0	0	0	1
P 12	Case22_F	1	0	0	0

Figure 30: By default PD families are like dichotomous variables

By following a simple naming convention, PD families can be turned into nominal and categorical variables for the use outside of ATLAS.ti in statistical and other database applications.

Let's assume that your respondents come from four different locations. To represent this in ATLAS.ti, you need to create four PD families, one for each location. Exporting these for families as PD-Family table to Excel, you get a table as shown above containing one variable per family with the values 0 or 1.

If you prefer just one variable for location rather than four, you need to use the following naming convention when creating your PD families: **VARIABLE**

NAME::VARIABLE VALUE::

Location::Berlin

Location::London

```
Location::New York
```

```
Location::Tokyo
```

When exporting the PD-Family table, the result will be as follows:

documents	Name	#Location
P 1	Case8_F	Berlin
P 2	Case6_F	London
P 3	Case10_F	New York
P 4	Case11_F	Tokyo
P 5	Case50_M	New York
P 6	Case2_F	Tokyo
P 7	Case3_F	Berlin
P 8	Case4_F	Tokyo
P 9	Case54_M	London
P 10	Case15_F	New York
P 11	Case20_F	Tokyo
P 12	Case22_F	Berlin

Figure 31: PD family table with a nominal variable for location

The table shows one variable for Location and the respective values as string: Berlin, London, New York and Tokyo. Note that the variable name is prefixed with a hash sign (#). This is the syntax that needs to be used when preparing a table for import (see below). The hash sign indicates to ATLAS.ti that this variable needs to be turned into multiple families.

Super families in PD Family Tables

Super Families (see page 89) are treated like standard families. If you do not change the default name suggested by ATLAS.ti when creating super families, then they are prefixed by an asterisk (*). In the table below you see two super families combining the families for *age group 1* and *2* with the family *female*.

documents	Name	*Age group 1 & female	*Age group 2 & female
P 1	Case8_F	1	0
P 2	Case6_F	1	0
P 3	Case10_F	1	0
P 4	Case11_F	1	0
P 5	Case16_F	1	0
P 19	Case2_F	0	1
P 20	Case3_F	0	1
P 21	Case4_F	0	1
P 22	Case5_F	0	1
P 23	Case13_F	0	1
P 24	Case14_F	0	1

Figure 32: Display of PD Superfamilies in PD-Family tables

Do not assign a PD to more than one family with the same variable name (e.g., both to `Location::Berlin` and `Location::New York`). ATLAS.ti allows this, as it treats every family as a separate dichotomous variable. However, when converted into a categorical variable "Location" in the process of creating a PD-Family table, such multiple assignments could create problems.

How to prepare and import a PD-Family table, see the full manual (available from <http://manual.atlasti.com>)

Working with Memos

Possible uses for memos:
 To take methodological notes
 As a "bulletin board" in team projects
 As a project planning device.
 As a primary document
 To create code lists

Writing memos is an important task in every phase of the qualitative analysis process. The **ideas** captured in memos are often the "pieces of a puzzle" that are later put together in the phase of report writing. **Theory-building**, often associated with building networks, also can involve the use of memos.

Memos are explanatory and descriptive texts that may be **associated with other "objects"** like quotations, codes, or other memos. Memos can also **"stand alone"** – simply as part of an HU. They can contain **methodological notes**; they can be used as a **bulletin board** to exchange information between team members; you can use them to write **notes about the analytical process**, keeping a journal of to-dos. Memos may also serve as a **repository** for symbols, text templates, and embedded objects that you may want to insert into PDs or other memos.

Memos can also be assigned as primary documents, if you want to code them.

Difference between Memos and Codes

Code names are (or should be) succinct, dense descriptors for concepts emerging during the stage of closely studying the data. They often reduce complex findings to crisp placeholders and/or theoretically relevant concepts.

Beginners often stuff lengthy treatises into a code name, blurring the distinction between codes, comments, and memos and thereby mistaking codes for their more appropriate siblings.

If you find yourself using more than a few words as code word, consider using quotations or the code comment instead.

Like codes, memos have names. These names, or titles, are used for displaying memos in browsers, and help to find specific memos. Just like code names, a memo's title should be short and concise. Don't mix the name with the content!

A comment is a part of another object; a memo is an object by itself.

How Memos and Comments Differ

Memos are very similar to comments in that both are intended to hold lengthy texts, as opposed to codes that are simply naming a concept. Comments exclusively belong to one entity. For example, the PD comment is part of the primary document.

Comments are not displayed in browsers separately from the object to which they are attached. Memos can be associated with more than one object and have an additional **type** attribute, e.g., theoretical, methodological, commentary, etc. They can also be free-standing, unlike comments.

Memo Content

Memos may use plain-text as well as Unicode or Rich Text. The latter allows extended formatting and offers the option to insert pictures, tables etc. You can also include local file names like file://notation.

The Memo Editor

For displaying and editing memos, a modified text editor is used. It is opened via the Memo Manager's toolbar for an existing, selected memo or when creating a new memo.

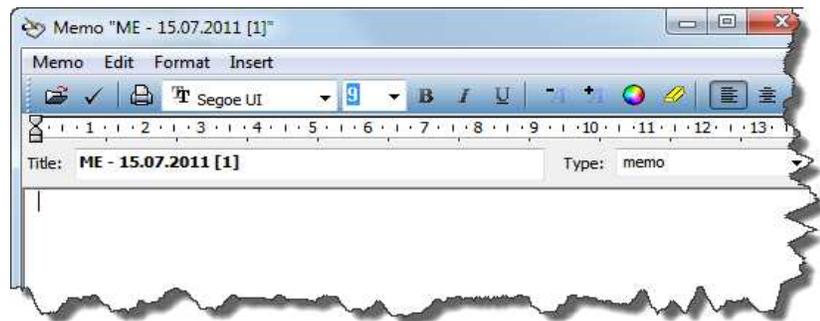


Figure 33: The memo editor

Below the toolbar, the editor includes a title and memo type field. The default title assigned to a newly created memo is: "ME – today's date". The title and the default type "Commentary" can be changed by overwriting the default title or by selecting a different memo type.

Various options are available. You can change the default memo title and manage available memo types. You can also be prompted for a title when creating a new memo.

After having typed or changed something in the memo editor and before closing the editor, save the contents if you want to keep it. Click on the Save button or select **MEMO / SAVE** from the editor's menu.

Create a free memo



In the Memo Manager, click the **CREATE NEW** button or select **CREATE FREE MEMO** from the HUEditor's **MEMOS** menu.

A new memo with the default memo title is created. The memo editor opens (default setting).

Change the memo title according to your needs and begin to type the memo.



Save the memo content before moving on to do something else by clicking on the Accept button, or select **M**EMO / **S**AVE or click **Ctrl+S**. If you forget to save it, you are reminded by the program to do so before closing the editor.

Attaching Memos to Data Segments

The procedure to create and associate a memo with a data segment or an existing quotation is similar to the coding procedures described above.



You can customize the default values used for memo title and type via **EXTRAS / P**REFERENCES / **G**ENERAL **P**REFERENCES, **T**AB: **M**EMOS.

Select the part of the primary document to which you want to attach the memo.

Select a memo in the Memo Manager and drag and drop the memo to the highlighted data segment (or right click on the memo and select the option **ATTACH MEMO**).

Data Analysis Tools

Overview

Analysis Tools

In the first part of this section, you find a description of exploratory and advanced analysis tools. These are: the word cruncher, the query tool, the co-occurrence tools, the code-primary-documents table, super codes and super families.

Word Cruncher: Creates a word frequency count for textual primary documents (see page 75).

Query Tool: Finds quotations based on a combination of codes like: "Show me all quotations where both Code A and Code B have been applied." Such queries can also be combined with variables in form of PD families. Thus, you can restrict a query to a certain sub groups of your documents: "Show me all quotations where both Code A and Code B have been applied, but only for female respondents between the age of 21 and 30" (see page 77).

Co-occurrence tools: Different from the query tool, where the results are quotations, you can use the two co-occurrence tools to find codes. The tree explorer list all codes on the first level of the tree and if there are more codes that have been applied to the same or overlapping quotations, then you can open the tree branches to see those codes. If you open the tree further, the associated quotations are shown. The second tool, the table explorer, shows a cross-tabulation of codes and within the cells a frequency count of how often each pair of codes co-occurs. The cells also provide access to the data behind them (see page 89).

Codes-Primary-Documents-Table: This table is a cross-tabulation of codes by primary documents. It shows how often a code has been applied to a document (see page 95).

Super Codes are saved queries. They can be reused, e.g. after more coding has been done or after coding has been modified. They can also be used as part of other query, thus, you can build complex queries step by step (see page 84).

Super Families: Like super codes, super families are saved queries based on families. The purpose is to create families on an aggregate level. For instance, if you have your base families for age groups, gender and location, you can create super families that reflect a combination of these base families like all females from age group 1 living in city X (see page 89).

Intercoder-Reliability: To assess intercoder reliability for data coded in ATLAS.ti., you can use the web based tool CAT to calculate Cohen's kappa and Cronbach's α (alpha) See the full manual for further detail (<http://manual.atlasti.com>).

The Word Cruncher

This feature offers word “crunching” capabilities for a simple quantitative content analysis. It creates a list of word frequency counts for the selected or all (currently filtered) textual PDs. A stop list and a list of ignorable characters can be used to control the analysis.

Creating a Word Frequency Report



From the main menu, select **DOCUMENTS/ TOOLS / WORD CRUNCHER**, or click the main toolbar’s Word Cruncher button.

A property dialog opens offering a number of options that affect the procedure:

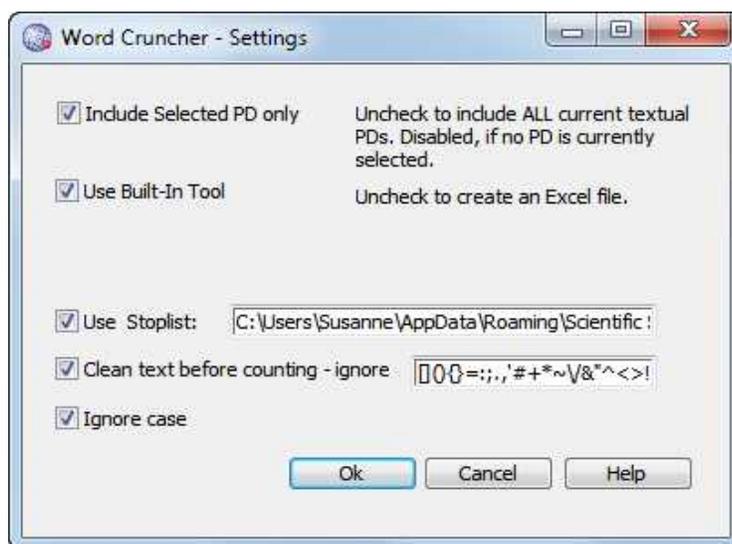


Figure 34: Setting properties to start a word frequency count

You may specify a number of properties before starting the frequency count.

Include Selected PD only: Select the **scope of the count** to be all textual documents or the selected one only.

Use Built-in Tool: If you want to output the frequency count in Excel compatible format, uncheck this option. The built-in tool is a simple list

window. In addition to the frequency count, size and percentage for each word is shown. The built-in tool can only be used for a selected PD.

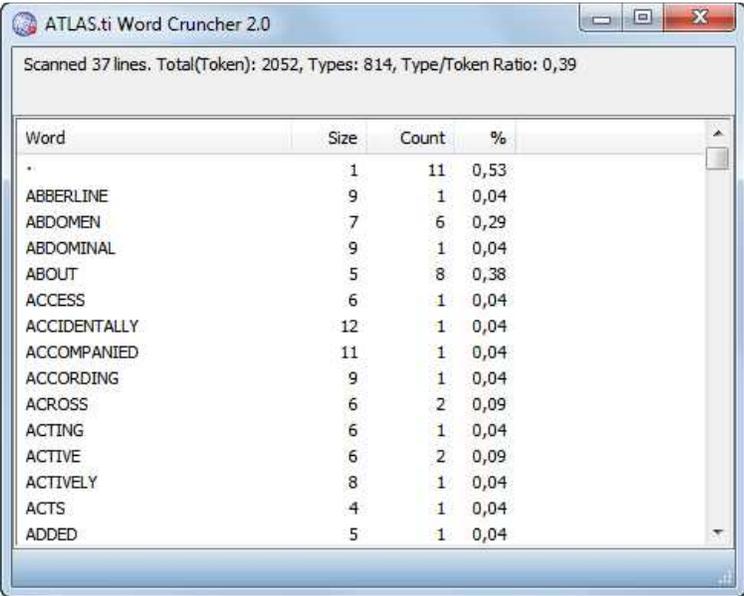
Use Stoplist: Use a stop list to exclude words from the count. Instead of enumerating every variant of a word, you can specify patterns. You can create powerful stop lists for different languages, different topics, and different levels of detail.

Clean text before counting – ignore: The characters specified in this dialog will be removed from the source word before it is counted. Example: including " eliminates the difference between "Hello" and Hello.

Ignore case: If checked, upper and lowercase letters are ignored: Hello, HELLO, and hello are not counted separately.

After all options are set, click the **OK** button.

The figure below shows the result when using the built-in tool for a single PD. If you want to see the word frequency count for all or selected documents, use the Excel output option.



Scanned 37 lines. Total(Token): 2052, Types: 814, Type/Token Ratio: 0,39

Word	Size	Count	%
.	1	11	0,53
ABBERLINE	9	1	0,04
ABDOMEN	7	6	0,29
ABDOMINAL	9	1	0,04
ABOUT	5	8	0,38
ACCESS	6	1	0,04
ACCIDENTALLY	12	1	0,04
ACCOMPANIED	11	1	0,04
ACCORDING	9	1	0,04
ACROSS	6	2	0,09
ACTING	6	1	0,04
ACTIVE	6	2	0,09
ACTIVELY	8	1	0,04
ACTS	4	1	0,04
ADDED	5	1	0,04

Figure 35: Word Cruncher output when using the internal tool

Query Tool

You need the Query Tool for queries using more than a single code.

The **Query Tool** is used for retrieving quotations using the codes they were associated with during the process of coding. This is different from a *text* search: To search for occurrences of text that match a specified pattern or string, you have to use the search function or the Object Crawler (see the full manual, <http://manual.atlasti.com>).

The simplest retrieval of this kind (“search for quotations with codes”) is what you frequently do with the Code Manager: double-clicking on a code retrieves all its quotations. This may already be regarded as a query, although it is a simple one. The Query Tool is more complex in that it can be used to create and process queries that include combinations of codes.

A **query** is a search expression built from operands (codes and code families) and operators (e.g. NOT, AND, OR, etc.) that define the conditions that a quotation must meet to be retrieved (e.g., all quotations coded with both codes A and B).

By selecting codes or code families and operators, a query can be built incrementally which is instantaneously evaluated and displayed as a list of quotations. This incremental building of complex search queries gives you an exploratory approach toward even the most complex queries.



The Query Tool Window

The Query Tool is launched by clicking the Query Tool button (see left), by choosing **CODES / OUTPUT / QUERY TOOL**, or **TOOLS / QUERY TOOL** from the HU Editor's main menu.

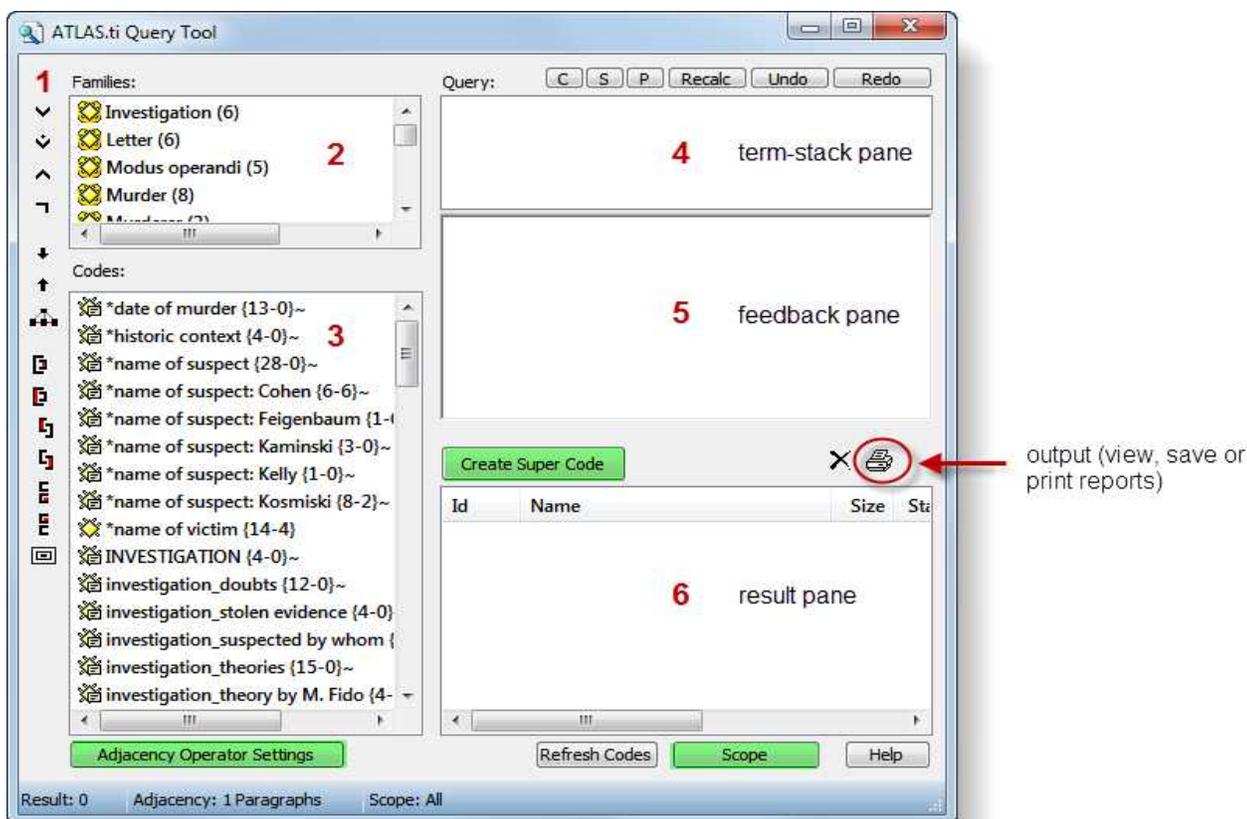


Figure 36: The Query Tool window

The Query Tool has the following main components:

[1] The **operator toolbar**, located near the left margin of the window.

[2] The **code-family pane** in the upper left lists code-families to be used in queries.

[3] The **codes pane** below the code-family pane contains all current codes (set filters do apply).

[4] The **term-stack pane** in the upper right displays the stack of all expressions entered in the current query. If more than one entry is visible, there are arguments still waiting to be used in the query. The topmost entry is the current query.

[5] The current query is also displayed in the **feedback pane** directly below the term-stack pane. Here a different notation is used, one that uses parentheses and resembles the calculator style of entering queries.

[6] The result of the query is displayed in the **results list** located in the lower right of the window.

Above the term-stack pane are several buttons for manipulating the stack: swapping (S) or duplicating terms (P), clearing the stack (C), etc.

Close to the results list are two buttons for removing unwanted hits and creating a report.



In figure Figure 36: The Query Tool window you see three other buttons highlighted in green. A super code is a saved query (see Super Codes on page 84 for further detail). You need the adjacency operator settings if you want to search for codes near to each other. Behind the Scope button you find another important feature. When you click on the Scope button, a second window opens showing the PD families you have created. These are often variables like age, gender, education, profession, location, time intervals etc. The scope function allows you to combine a code query with variables. For instance you can ask for all quotations where you have applied code A and code B, but only for females between the ages of 21 to 30.

Operands

Basic Operands

Two sorts of *basic or atomic operands* may be used in a query: **Codes** and **code families**.

A code represents a set of quotations, while a code family yields the quotations of all the codes that its members have. In other words, a family is interpreted as its member codes connected by the Boolean operator OR. Selecting a code family F1 which contains five codes C1-C5 is equivalent to the query: "C1 OR C2 OR C3 OR C4 OR C5".

Complex Operands

"Operand" does not only apply to basic descriptors. An operand can be **any expression** that itself is used as an argument. An expression "A AND B" may be used in a more complex query as an operand: "NOT(A AND B)", "(A AND B) OR (C AND NOT D)", etc.

All types of operands can be freely mixed in a query using any of the operators described below.

Operators

Three sets of operators are available. They are located within the toolbar at the left edge of the Query Tool.

Boolean operators allow combinations of keywords according to set operations. They are the most common operators used in information retrieval systems.

Semantic operators exploit the network structures that were built from the codes.

Proximity operators are used to analyze the spatial relations (e.g., distance, embeddedness, overlapping, co-occurrence) between coded data segments.

You can display a short help message for each operator by right clicking on its corresponding button in the toolbar.

The Query Language

Queries are built step-by-step from operands and operators using the principle of **Reversed Polish Notation (RPN)**. This sounds complicated, but it is actually quite easy. See for example:

http://en.wikipedia.org/wiki/Reverse_Polish_notation

RPN, invented by Polish mathematician Lukasiewicz, does not require parentheses to control the priority of operators, nor does it require any other characters like commas, periods, etc. Every click produces a meaningful result and it is impossible to create syntactically wrong queries.

Operands First, Operators Next

The most important point to understand about RPN is the *order* in which operands and operators of a search expression are entered. Using RPN, operands (codes, code families) are entered first, followed by one or more operators.

Creating a Query with the Query Tool

We are really not interested in the operands (codes, code families) themselves, but in the set of quotations that is the result of *evaluating* an operand. By formulating a query "A OR B," this is what we really mean: "*Quotations coded with code A OR quotations coded with B.*" Therefore, entering the operand code "X" displays the quotation names which were coded with "X" in the results list. Next, you can either view the resulting quotations in context within the primary document, or generate a report that contains the full length quotations with or without their comments.

A Boolean Query

The example below uses the HU "Jack the Ripper_stage II." Please load and display this HU while reading the following. You can access the samples file , via **HELP / QUICK TOUR**.

Our sample query, using Boolean operators, is this: "Find all quotations coded with either code "*reason released: alibi*" or code "*reason released: lack of evidence*".

Open the Query Tool by clicking on the binoculars button in the main toolbar.

Double-click on the code "reason released: alibi". The Query Tool displays the following entries:

The result of any query is a set of quotations.

Build complex queries incrementally with immediate feedback after each step.



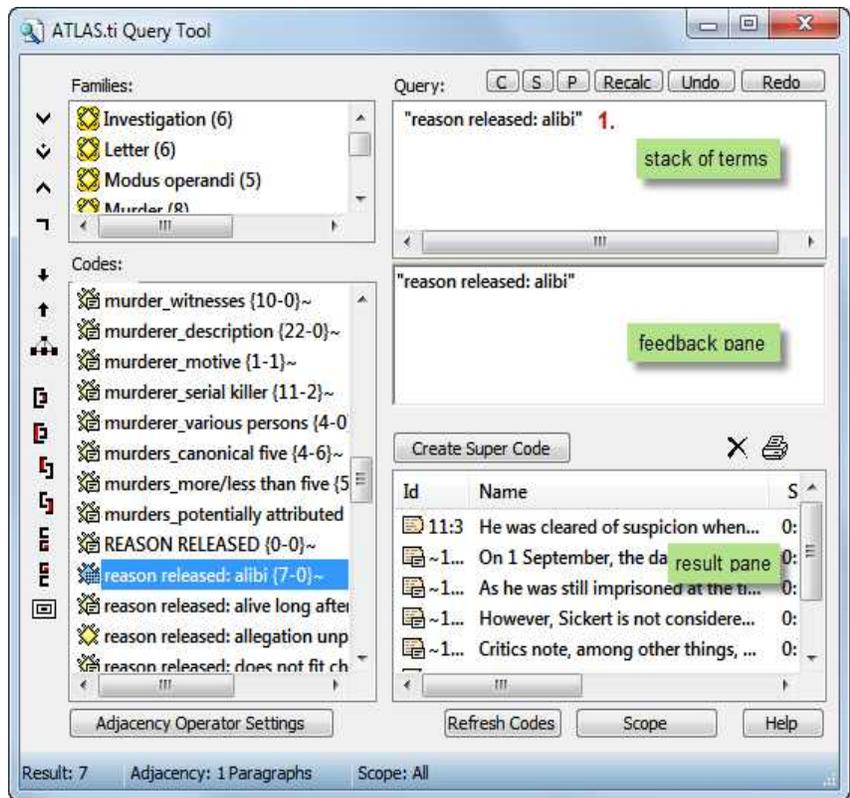


Figure 37: Clicking a Boolean Query: Step 1

The *term stack* and feedback pane now display the code "reason released: alibi". The results pane lists all quotations for this code.

Double-click on the code "reason released: lack of evidence".

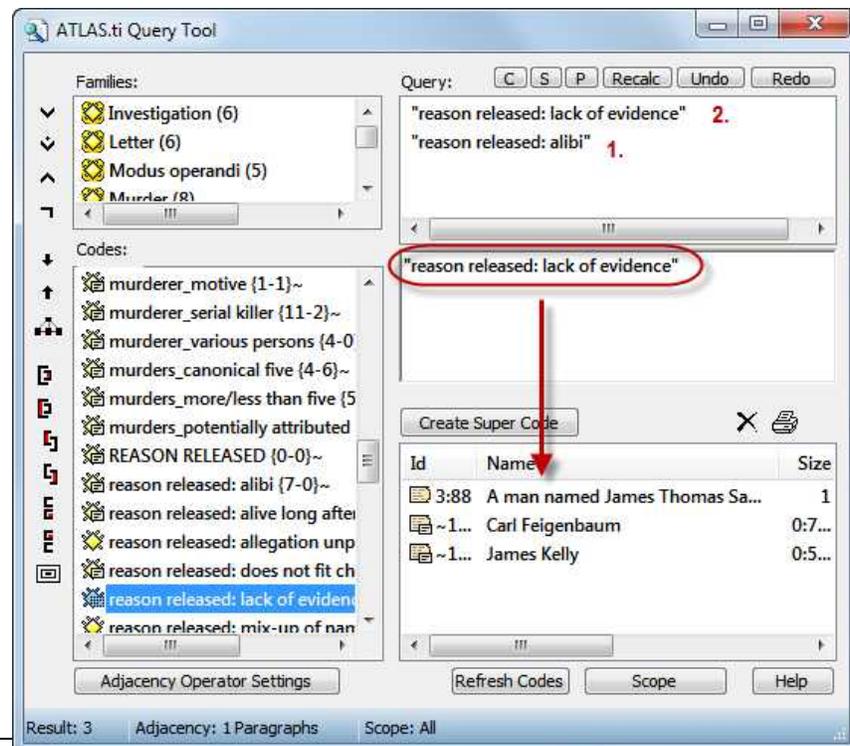


Figure 38: Clicking a Boolean Query: Step 2

With two operands on the term stack, we can combine them with an appropriate operator. The intention was to retrieve all quotations that contain information about an alibi or lack of evidence as reasons to release a suspect.

Click on the OR operator (see left) to combine the two expressions from the stack.

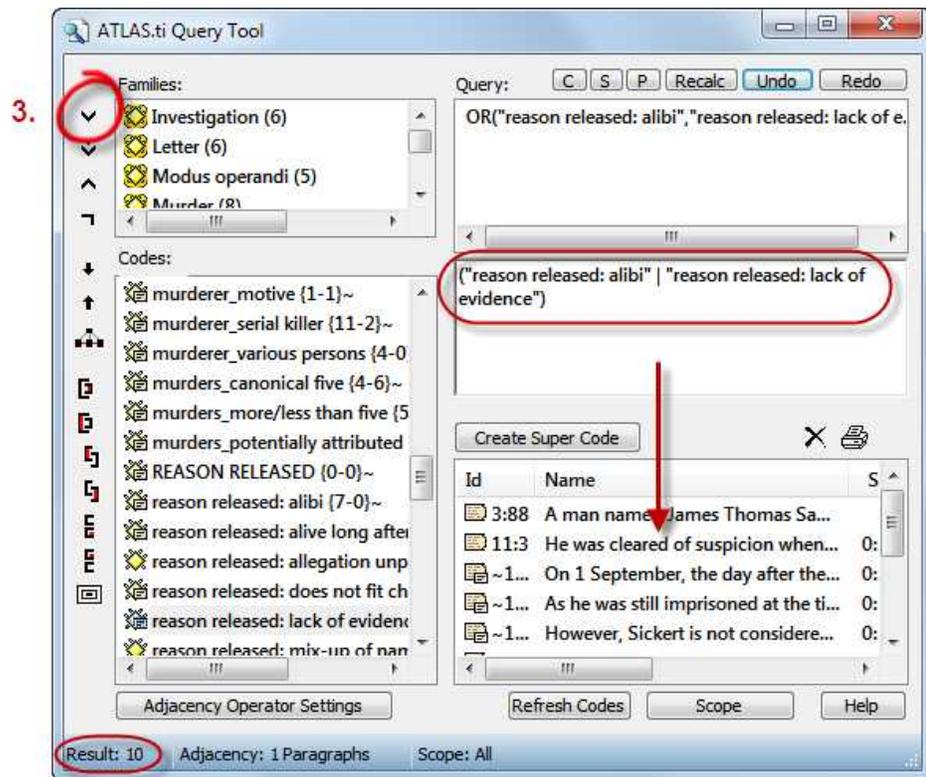


Figure 39: Clicking a Boolean Query: Step 3

The term stack now contains only one term, OR("reason released:alibi", "reason released: lack of evidence"), i.e. the combination of the two codes. This term can be used as an operand to further extend the query, e.g. to negate the expression or add some more codes to it. But we will stop here for now.

The feedback pane displays the query in infix notation, as we would have entered it into a regular calculator ("reason released: alibi" OR "reason released: lack of evidence"). The results pane lists 10 quotations.

You can look at the quotations in the context of the document by clicking on a quotation in the list, or you can create a report.

Output of Query Results

Viewing results in context

Make sure that the Query Tool does not completely obstruct the area where PDs are displayed.

Click on a quotation in the results pane.

The quotation is highlighted in the primary document pane:

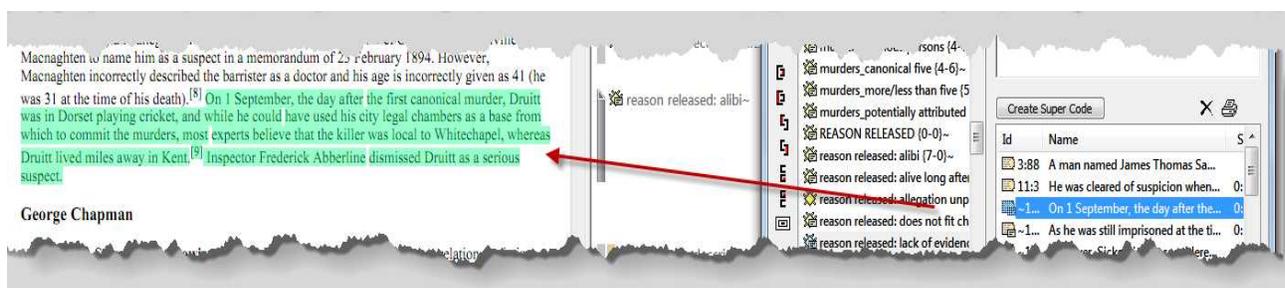


Figure 40: Viewing results in context

Creating a Report

To print all hits found by a query, click the **PRINTER** button to the right of the results list.

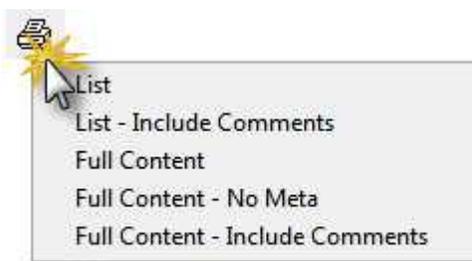


Figure 41: Output options

Select one of the following report options:

- **LIST:** Print a list of all quotations in a compact format showing only the quotation names.
- **LIST – INCLUDE COMMENTS:** Same as **LIST** but includes the quotations' comments if any.
- **FULL CONTENT:** Output the *complete text* of the quotations.
- **FULL CONTENT – NO META:** Output the *complete text* of the quotations and specify the kind of information that is included in the output. You may for example exclude the meta information for each quotation.
- **FULL CONTENT – INCLUDE COMMENTS:** Same as **FULL CONTENT** but includes the quotations' comments if any.

Then, choose whether the output should be displayed in a text editor, saved to disk, or printed (see also “Output Destinations” on page 125).

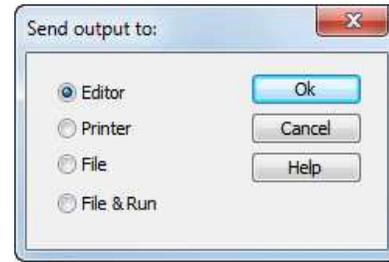


Figure 42: Select output destination

*"Intelligent"
Super Codes
compute their
quotations "on
demand".*

Super Codes

Super Codes are a convenient way to store queries. Super Codes are very similar in look and feel to normal codes, with one important difference: instead of “hardwired” connections to quotations, Super Codes store a query to compute their virtual references whenever needed.

They “automatically” change their behavior during the course of theory building. If you have a Super Code “All about Magic” with a query “SUB Magic” and later add another sub code “White Magic,” all quotations to which the latter code refers are also retrieved by the (unchanged) query of “All about Magic.” Super Codes can be clicked on in the code list like any other code and they will display their quotations in an identical way.

Normal codes are “hard-wired” to their quotations.

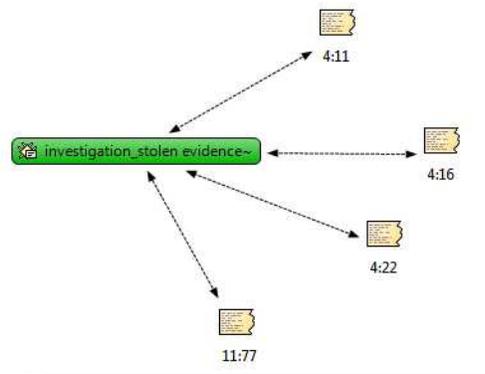


Figure 43: Codes are hard-wired to their quotations

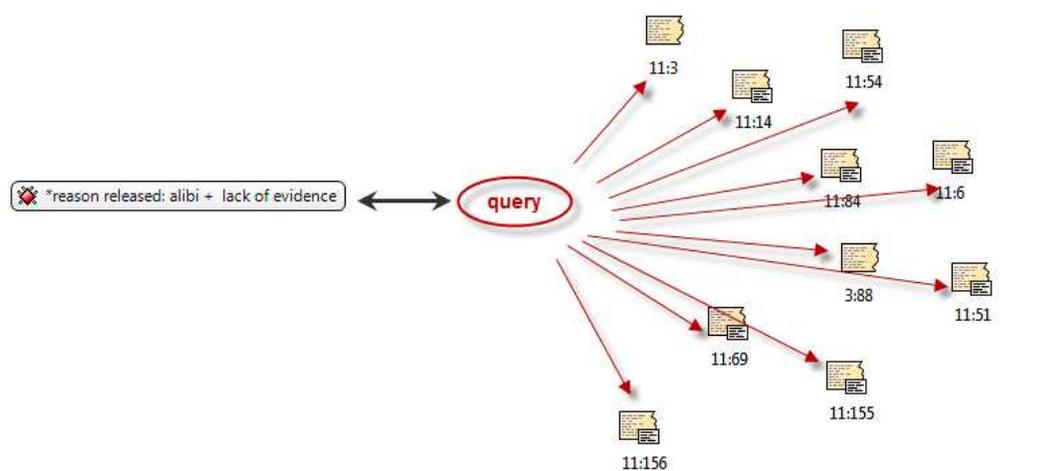


Figure 44: Super codes are linked to quotations via a query

Super codes are displayed in the Code Manager just like regular codes and can be recognized either by a red text color or by their red symbol, if images are switched on in the Views menu. The list of quotations associated with the Super Code can be displayed with a double-click, just as for any other code. Frequencies (density) are only indicated if you activated it, e.g. with a double-click in the Code Manager. If you start a new session, an asterisk (*) replaces the frequency count. The reason for this is that a Super Code is dynamic and its density/frequency count changes as soon as you modify any of the codes contained in the query of the Super Code. For the same reason, Super Codes are *not* displayed in the margin area. There is the possibility to create a regular code from a Super Code.

Super Codes
can contain
Super Codes
can contain....

Super Codes can be used in code families, Network Views, and, last but not least, as powerful operands in queries, allowing you to incrementally build complex queries.

Creating Super Codes

To create a Super Code, you must have already constructed a query using the Query Tool which is displayed in the term stack. Note that because Super Codes are "intentional," you can also create a valid and useful Super Code with an empty results list (which might well change in a later stage of your analysis).

Click the "Super-Code" button in the query tool between the feedback pane and the result pane.

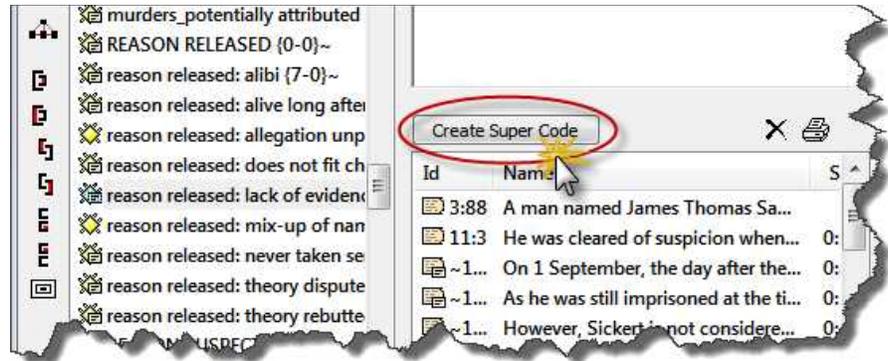


Figure 45: Location of super code button in the query tool

- Enter a name for the new Super Code or accept the default name created from the query expression. Click **OK**.
- The newly created Super Code immediately appears in the list of codes and can be used for new queries (and Super Codes) right away. Its icon and code name are red.

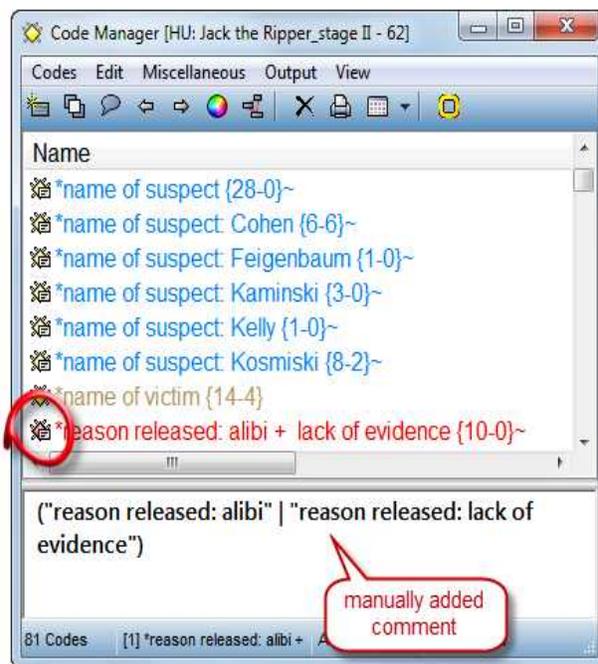


Figure 46: Display of super code in the Code Manager

You can access and edit the query later, but the notation that is used in the edit query window is not so easy to understand. Therefore it is advisable that you enter the query into the comment field of the super code. You can copy and paste it from the feedback pane into the comment field.

Restricting Code Queries to Sub Groups

You can specify the documents that are to be considered in a query. By default, the query's "document universe" is *all* PDs currently filtered in the HU Editor. Clicking Scope opens another window that shows the PDs in the lower left pane and the PD families in the upper left pane. As PD families can be looked at as nominal variables, it is easy to preselect "all interviews with male interviewees aged between twenty and thirty from small towns.

A restricted set of operators is offered (note that only Boolean operators make sense here) and can be used to construct scope selection queries in much the same way as the query itself.

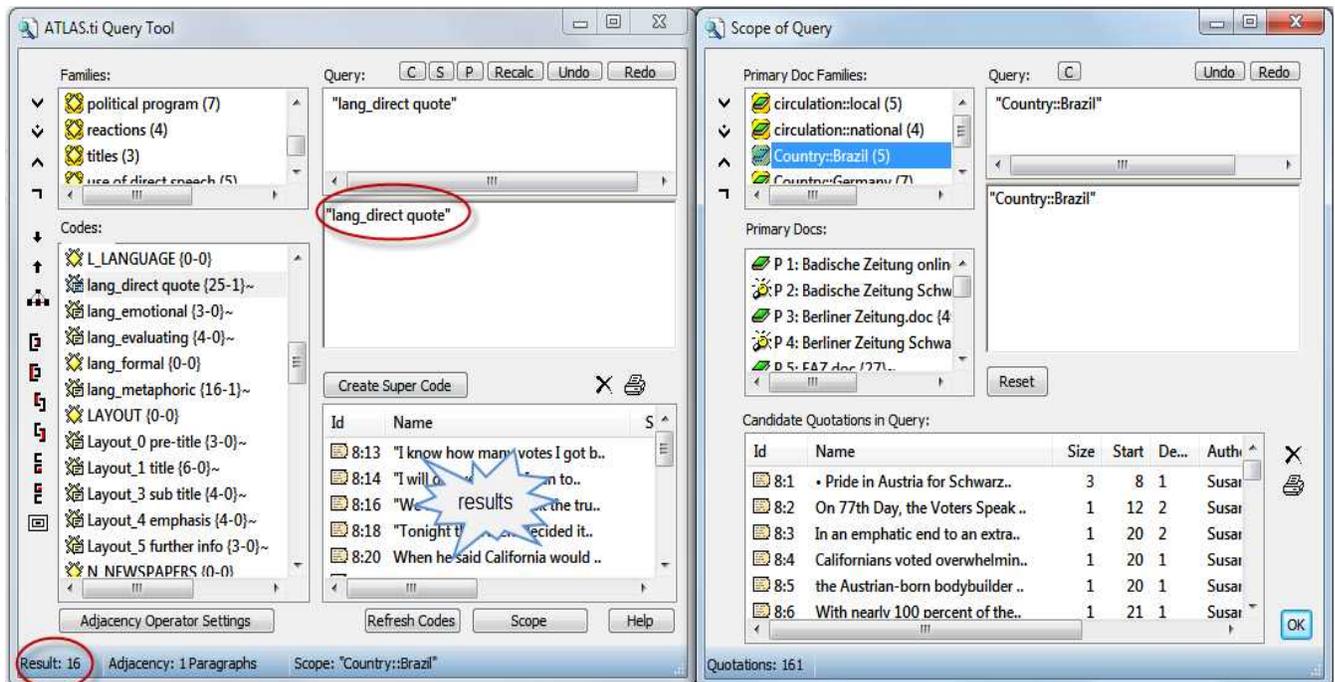


Figure 47: Restricting a search to a sub group of data

Figure 26 above shows a simply query for the code "lang_direct quote" (use of direct quotes in newspapers articles).

The question of interest is whether this writing style is used equally across the various newspapers. The two countries compared are Germany and the USA. The frequency for all documents is 25 (see the code in the code list on the left hand side).

The scope is set to the PD family "Country::USA". This means that the result pane is filtered only displaying quotations from US newspapers. This results in 16 quotations, which can be seen at the bottom left of the query tool window.

Double-clicking on the PD Family "Country:: Germany" in turn yields the remaining 9 quotations ($16 + 9 = 25$). Further comparisons could be by circulation, local versus national papers, or by political orientation comparing papers that are more politically right or left oriented.

For the results always look at the result pane of the query tool window. The bottom pane of the Scope of Query window shows all quotations from the selected document group. In mathematical terms, the result pane in the query tool window shows the intersection between the code query and all quotations from a particular document group.

You can also combine a number of PD families or individual PDs using Boolean operators in the Scope of Query Window (see "Combining group of documents to restrict searchers" below).

A scope is not stored as part of a Super Code's query specification. When you process the query of a Super Code later, the complete data base is queried by default.

Combining group of documents to restrict searchers

A combination of document families like all females in age group II (31-40) from New York is clicked in the same way as you click a code query. You first select two or more PD families and then you select one or more operators:

- Create a query.
- Click on the **Scope** button.
- To create the above described subgroup, you would double click on the three families: female, age group II and City::New York. Then you click on the **AND** operator twice.

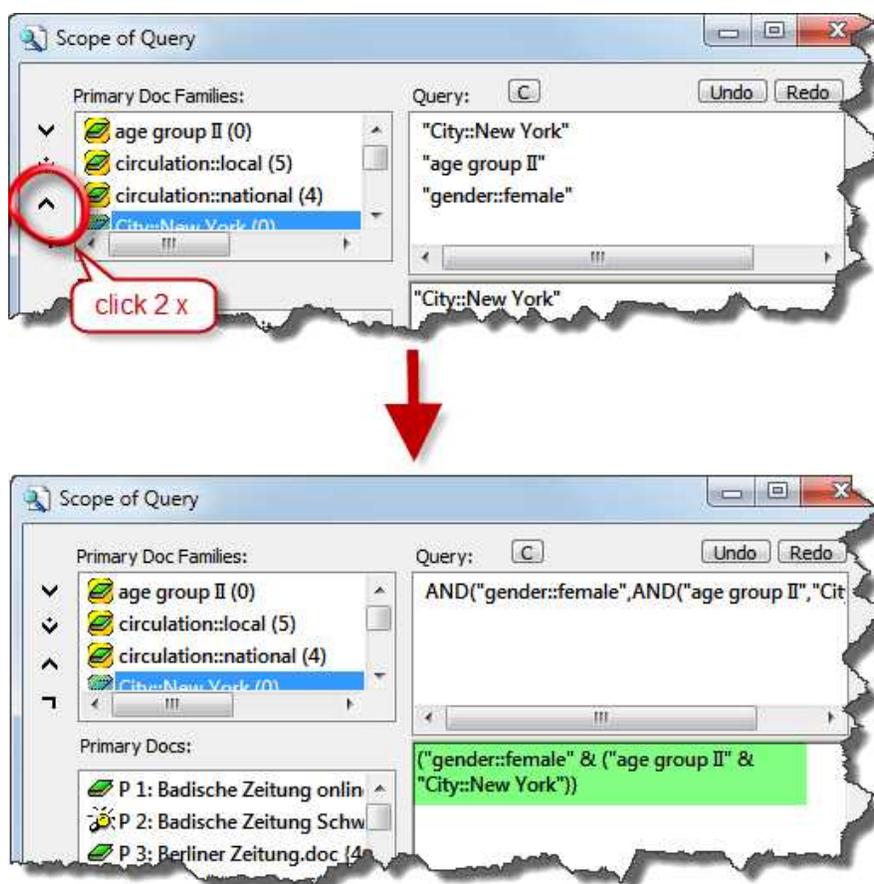


Figure 48: Combining document families to set the scope

Super Families

Just like Super Codes, Super Families re-calculate their members "on demand."

Super Families follow the same underlying logic as Super Codes (cf. "Super Codes" on page 84). They are constructed by combining families or already existing super families.

Their members are determined *dynamically* whenever you activate a Super Family. Super families can be created based on primary document families, code families and memo families. (For further detail, see the full manual, <http://manual.atlasti.com>).

Co-occurrence Tools

The Co-occurrence Explorer works on a different logic than the Query Tool. In the Query Tool the user has to determine and select codes or code families and the appropriate operator. The results are a list of quotations. The Co-occurrence Explorer by default looks for all codes that co-occur in the margin area combining the operators WITHIN, ENCLOSES, OVERLAPS, OVERLAPPED BY and AND without the user having to select a specific code, code family or operator. It is however possible to work with filters, so that the tool is not always creating output for all data and all codes.

The Co-occurrence Tools offer two output choices. You can either view the results in form of a hierarchical tree or in form of a table. Below you see an example for both.

How to open the Co-occurrence Tools

Select **Tools / Co-occurrence Tools** and then select either the tree or the table explorer.

The Co-occurrence Tree Explorer

When running the tree explorer, you only see the root objects when it opens. Open the branches by clicking on the + sign to see the co-occurring codes on the first level and the associated quotations on the second level.

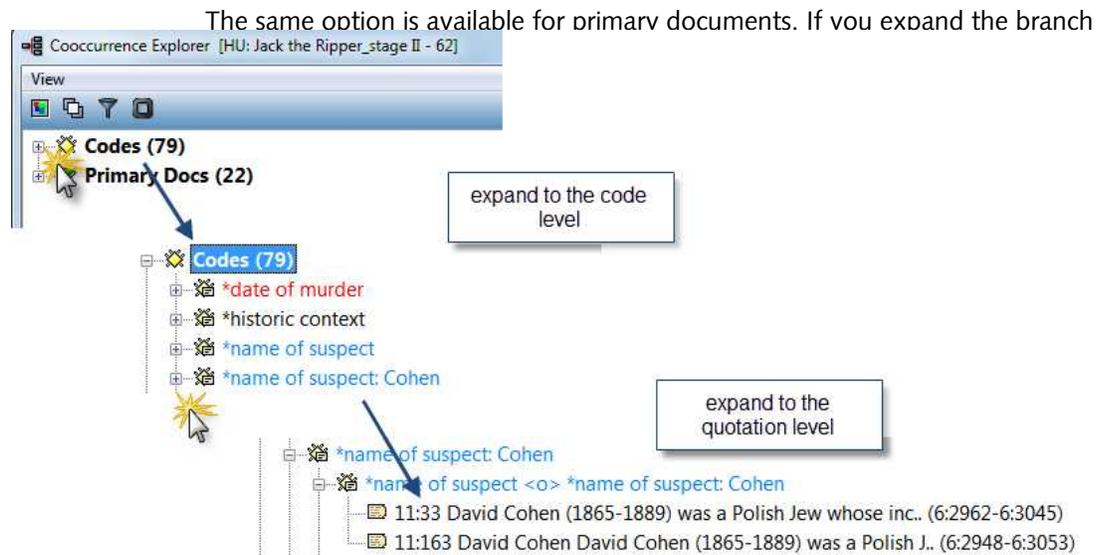


Figure 49: Expanding to code and quotation level in the tree explorer

for Primary Docs, you can see which codes have been applied to this PD. Further, you can expand to the quotation level to look at the material coded there.

Let's take a look at a potential question that the Co-occurrence Tree Explorer can answer:

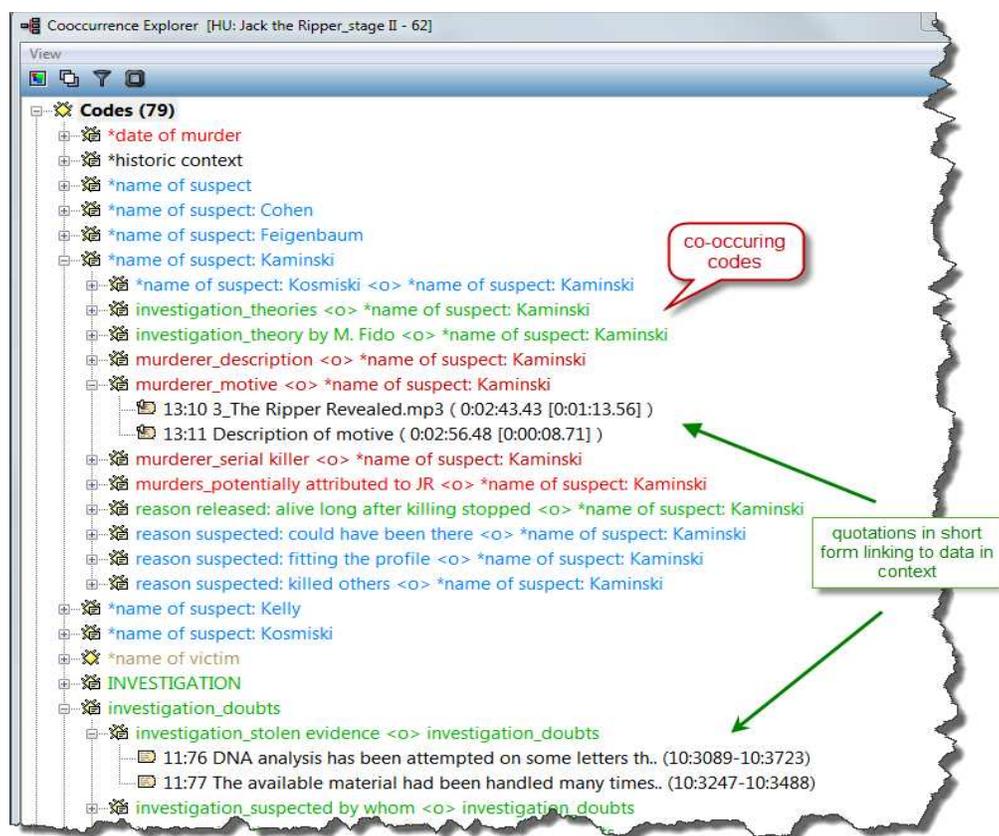


Figure 50: The Co-occurrence Explorer Tree View

With one click you can see which codes were used when the code "name of suspect: Kominiski" was applied: the description of the suspect, his potential motive and a list of reasons why he was suspected. If you expand the tree one more level you gain access to the full context with a click on the quotation link.

In the section "Explaining frequency count and number of quotations listed" on page 94 it is explained how to interpret the listed quotations. If you want a count of the number of quotations that co-occur, you need to run the table explorer (see below).

The Co-occurrence Table Explorer

The Co-occurrence Table Explorer in comparison to the Tree Explorer shows the frequencies of co-occurrence in form of a matrix similar to a correlation matrix that you may know from statistical software.

To produce such a table, select **TOOLS / CO-OCCURRENCE TOOLS / TABLE EXPLORER**:

	investigation	*name of sus	murder_site	murderer_de	murder_profi	reason suspe	investigatic
investigation_s	12	n/a	7	1	8	5	
*name of sus	12	n/a	17	n/a	7	3	
murder_site	n/a	n/a	n/a	n/a	n/a	n/a	n/a
murderer_desc	7	17	n/a	n/a	13	1	
murder_profi	1	n/a	n/a	n/a	n/a	n/a	n/a
reason suspect	8	7	n/a	13	n/a	2	
investigation_t	5	3	n/a	1	n/a	2	
*name of victi	n/a	n/a	n/a	n/a	n/a	n/a	n/a
reason suspect	7	3	n/a	9	n/a	8	5
reason suspect	7	2	n/a	3	n/a	3	6
reason suspect	7	6	n/a	12	n/a	8	3
*date of murde	n/a	n/a	1	n/a	n/a	n/a	n/a
investigation_c	n/a	n/a	n/a	n/a	2	n/a	n/a
murderer_seria	n/a	n/a	1	1	1	n/a	1
Jack the Ripper	3	n/a	n/a	n/a	n/a	n/a	n/a
murder_witnes	n/a	1	n/a	1	n/a	n/a	n/a
victim_econon	n/a	n/a	n/a	n/a	n/a	n/a	n/a
modus operan	n/a	n/a	n/a	1	n/a	n/a	n/a
reason release	1	1	n/a	1	n/a	3	3

Figure 51: Co-occurrence Explorer Table View

Using the default settings, a c-coefficient is immediately displayed. You find more information on the c-coefficient in the full manual (<http://manual.atlasti.com>)

n/a

The entry **n/a** indicates that the pair of codes does not co-occur anywhere in the data material (= not applicable).

User-defined content

If you have not set a code family as filter, all co-occurrences for each pair of codes will be displayed. This potentially results in a huge table. Therefore, in the columns to the left of the table, you can select the codes that should be listed in the columns and rows. This produces more purposeful tables.

- In the first column, select the codes to be displayed in the columns using the usual Windows selection techniques for multiple item selecting via the Ctrl or Shift key.
- In the second column, select the codes to be displayed in the rows.
- Activate the option **Use selected codes**. You find this option above the two selecting fields.

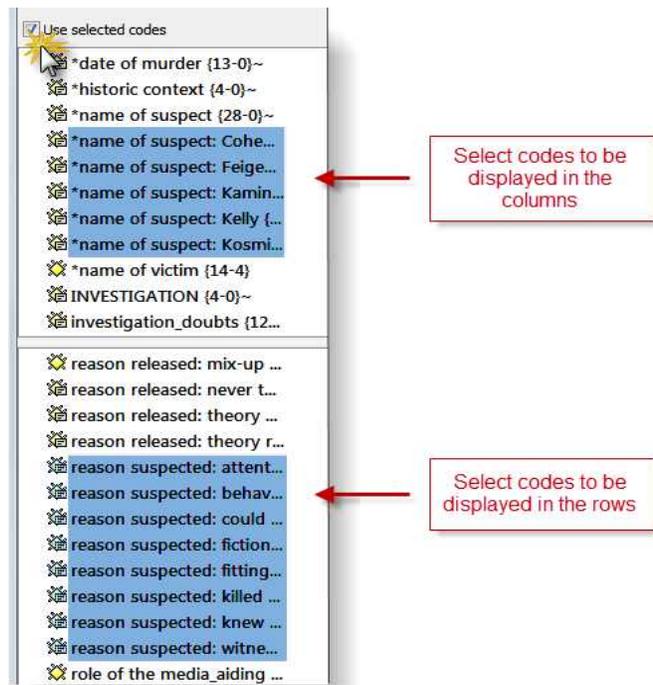


Figure 52: Select codes to be displayed in either the columns or rows of the table

The table below provides a good overview of the reasons why the five suspects Cohen, Feigenbaum, Kaminski, Kelly and Kosminski were suspected:

	*name of suspect: Cohen	*name of suspect: Feigenbaum	*name of suspect: Kaminski	*name of suspect: Kelly	*name of suspect: Kosminski
reason suspect	n/a	n/a	n/a	n/a	n/a
reason suspected: could have been there {15-2}~			n/a	n/a	1
reason suspect	1	2	2	1	1
reason suspect	1	n/a	n/a	n/a	n/a
reason suspect	4	n/a	2	1	2
reason suspect	1	3	1	1	n/a
reason suspect	n/a	n/a	n/a	n/a	n/a
reason suspect	1	n/a	n/a	n/a	2

Figure 53: Co-occurrence Table Explorer with selected codes

Another way to reduce the codes to be displayed in the table is by setting a code family as filter before running the Co-occurrence Table Explorer.

Inspecting Content

In order to see the quotations associated with the two co-occurring codes, the table cell can be expanded as shown in figure 32. The quotations in the drop-down list provide a direct link to the data in context.

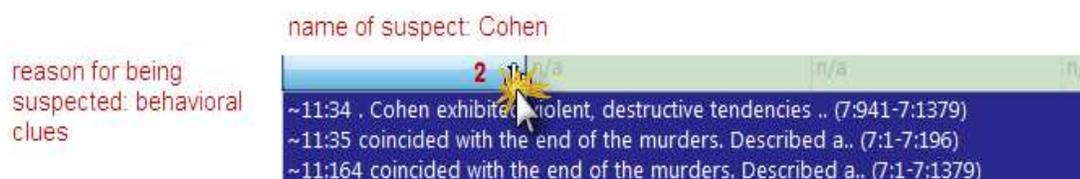


Figure 54: Expanded cell in the Co-occurrence Table Explorer

The number of co-occurrences in the above example is two, however three quotations are listed. Why this is the case is explained next.

Explaining frequency count and number of quotations listed

The co-occurrence frequency does not count single quotations it counts co-occurrence „events“. If a single quotation is coded by two codes, this would count as a single co-occurrence. The complications arise when we take overlapping quotations into account. In such a case when each of the two quotations is coded by one of the codes, this also counts as a single co-occurrence. However, in the cell drop down list you will find both quotations. In fact there are currently no means to discriminate between a single quotation's „strong“ co-occurrence and the „weak“ case for two quotations in close proximity. The drop down list will display an ordered list of all quotations for all co-occurrence events for the pair of codes.

Take a look at figure 32 above. Quotation 11:34 and quotation 11:35 (the two codes for “reasons suspected” are embedded within the larger segment, quotation 11:164, coded with “name of the suspect: Cohen”. This is shown by the quotation references and if you look at the quotation in the context of the data (see figure 25 below). The references indicate that the quotes are from a PDF document and can be found on page 7:

Quotation 11:35 starts at character 1 and ends at character 196.

Quotation 11:34 starts at character 941 and ends at character 1379.

Quotation 11:164 starts at character 1 and ends at character 1379.

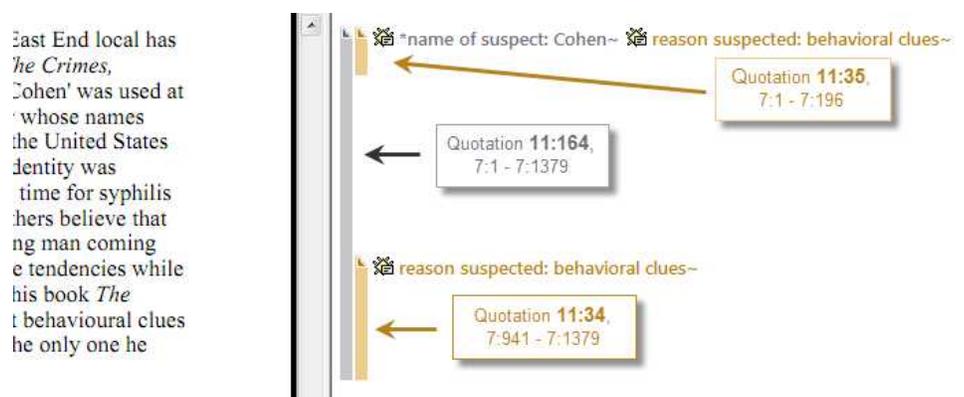


Figure 55: Explaining the relation between frequency of cooccurrence and number of quotations

Thus, there are three quotations, but only two co-occurrences that are counted for the frequency count.

Codes-Primary Documents Cross-Tabulation

Even though a bit hidden, a further analysis tool with an emphasis on quantitative output is the Codes-Primary-Documents-Table. You find this option under the menu **CODES / OUTPUT**.

The table is available as internal report within ATLAS.ti in text format, or can be exported to Excel. The internal report displays all PDs as columns and the codes as rows. The Excel table reverses the table: codes are shown as columns and PDs as rows.

The table contains either a frequency count for each code per document, or a word count of the coded segments per code and primary document.

When creating such a table, it is useful to set code families and PD families as filters first. Exporting a table that for instance contains 150 codes (= columns) and 40 documents (= rows) is not likely to provide useful information unless you want to use this table as input to a statistical package.

A useful application is a comparison across different groups of documents for a particular category of codes. Thus, you are likely to create such a table if you have a certain research question in your mind. This will guide you to create the code and PD families you need to construct your query. For example:

You have interviewed 10 women and 10 men in two cities and want to compare location and gender regarding certain issues you have been asking about like their thoughts and feelings about nuclear power plants after the accident in Fukushima, Japan in the spring of 2011. You have codes like fear, worries, belief in technology, change of focus towards renewable energies, no change, indifference. The Codes-Primary-Documents-Table can provide an

overview of how often these codes have been applied to the various groups of documents (see figure ref below)

	fear	worries	belief in technology	change of focus	no change	indifference	TOTALS:
P1: female/location A	1	2	1	2	1	0	7
P2: female/location A	0	1	1	1	1	0	4
P3: female/location A	2	0	0	0	0	0	2
P4: female/location A	0	0	1	0	0	1	2
P5: female/location A	0	3	0	3	0	0	6
TOTALS:	3	6	3	6	2	1	21
P6: male/location A	2	1	1	1	1	1	7
P7: male/location A	1	1	0	0	1	1	4
P8: male/location A	0	0	2	0	0	0	2
P9: male/location A	0	0	1	1	1	1	4
P10: male/location A	3	0	0	0	0	0	3
TOTALS:	6	2	4	2	3	3	20
P11: female/location B	0	1	0	1	1	2	5
P12: female/location B	0	1	1	1	0	1	4
P13: female/location B	0	1	0	0	2	1	4
P14: female/location B	1	0	1	1	2	0	5
P15: female/location B	0	0	0	0	0	3	3
TOTALS:	1	3	2	3	5	7	21
P16: male/location B	0	1	1	1	2	1	6
P17: male/location B	0	1	1	1	1	0	4
P18: male/location B	0	0	2	0	0	2	4
P19: male/location B	1	1	0	1	0	1	4
P20: male/location B	0	0	1	0	3	0	4
TOTALS:	1	3	5	3	6	4	22

Figure 56: A possible outcome of creating Codes-Primary-Document tables for various PD families

In order to create such a table, you need four Super-PD-Families (see “Super Families” on page 89) based on the four base families for gender and location:

female / location A,
 female / location B,
 male / location A,
 male / location B,

and a code family for the codes fear, worries, belief in technology, change of focus, no change and indifference (assuming that you have used a few more codes than just these seven). Then you create four tables and copy them all into one spread sheet. In most cases the totals are of highest interest and not the count for each individual PD. But this could of course also be the case, depending on your type of data and the kind of questions you are interested in.

Based on this first result, you can aggregate the data further and could come up with the following comparisons:

	fear	worries	belief in technology	change of focus	no change	indifference
Females/location A	3	6	3	6	2	1
females/location B	1	3	2	3	3	7
TOTALS:	4	9	5	9	5	8
Males/location A	6	2	4	2	3	3
Males/location B	1	3	5	3	6	4
TOTALS:	7	5	9	5	9	7
Female	4	9	5	9	5	8
Male	7	5	9	5	9	7
Location A	9	8	7	8	5	4
Location B	2	6	7	6	9	11

Figure 57: Further aggregation of the data

How to create a Codes-Primary-Documents-Table

Exporting the entire data set

If you want to create table based on all of your data for import into another software for further statistical analysis,

Select **CODES / OUTPUT / CODES-PRIMARY-DOCUMENTS-TABLE** → **QUOTATION COUNT (EXCEL)** OR **WORD COUNT (EXCEL)**.

Select as output destination File (or **FILE & RUN** if you want to view the table first).

Enter a name for the Excel file or accept the default name. Wait for Excel or OpenOffice Calc to open in case you have chosen the File & Run option. Accept the request to convert the data.

If you accept the default name and create a second table, make sure that a) the previous table is no longer open in Excel, otherwise you produce a protection violation error, and b) that you save the second table under a new name or otherwise you overwrite the first table.

Preparing tables to compare sub groups of data

If you want to compare groups of data, this means that you have to create PD families or Super-PD families first (see "Creating Families" on page 62 and the full manual for further detail on Super-PD families). In addition, in most cases you probably only want to look at a specific aspect described by a certain group of codes. This means you also have to set a code family as filter as well.

To set PD family as filter, select Documents / Filter / Families →

To set a code family as filter, select Codes / Filter / Families →

All filtered lists and managers appear in a pale yellow color so it is easy to recognize where you have set a filter.

Create the table by selecting **CODES / OUTPUT / CODES-PRIMARY-DOCUMENTS-TABLE** → and then select the option you need: Quotation Count or Word count; the internal or the Excel table.

Visualization

Tools for Visualization and Theory Building

The first steps of theory building of course already take place much earlier, often already during coding. Ideas are developed further during the process of querying the data. By asking specific questions, you gain more and more insights and start to see how things are related. Memo writing is an essential accompanying activity as well. T

The **network view function** offers further possibilities to explore your data and to visualize your ideas and findings. In a network view editor you can link all objects to each other. Code-code and quotation-quotation links can also be named and commented. Further a number of graphical elements like colored links, the line width, the node or background color can be set. Image documents can be used as thumbnails (see page 99).

Another function discussed below is the creation of **hypertext**. This is a network based on quotations, thus you work on the data rather than on the more abstract coding level. Through hypertext, the original sequentiality of your data is de-linearized, broken down into pieces that are then reconnected, making it possible to traverse from one piece of data to another piece of data regardless of their original positions (see page 114).

Network Views

The word "network" is an ubiquitous and powerful metaphor found in many different fields of research and application. Flow charts in project planning, text graphs in hypertext systems, cognitive models of memory and knowledge representation (semantic networks) are all networks that serve to represent complex information by intuitively accessible graphic means. One of the most attractive properties of graphs is their intuitive graphical presentation, mostly in form of two-dimensional layouts of labeled *nodes* and *links*.

the link starts and the *target node* is where it ends: the destination to which the arrow points. The terms *connection* and *link* are synonymous.

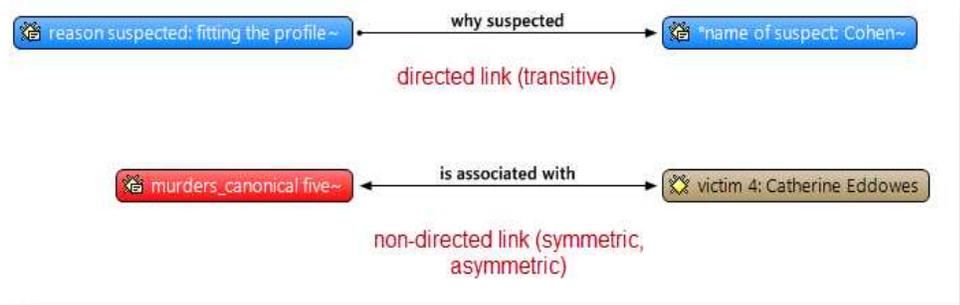


Figure 59: Examples of directed and non-directed links

Links are created either implicitly (e.g., when coding a quotation, the quotation is "linked" to a code), or explicitly by the user. The latter option is described in detail in this chapter.

Strictly speaking, code-quotation associations ("codings") also form a network:

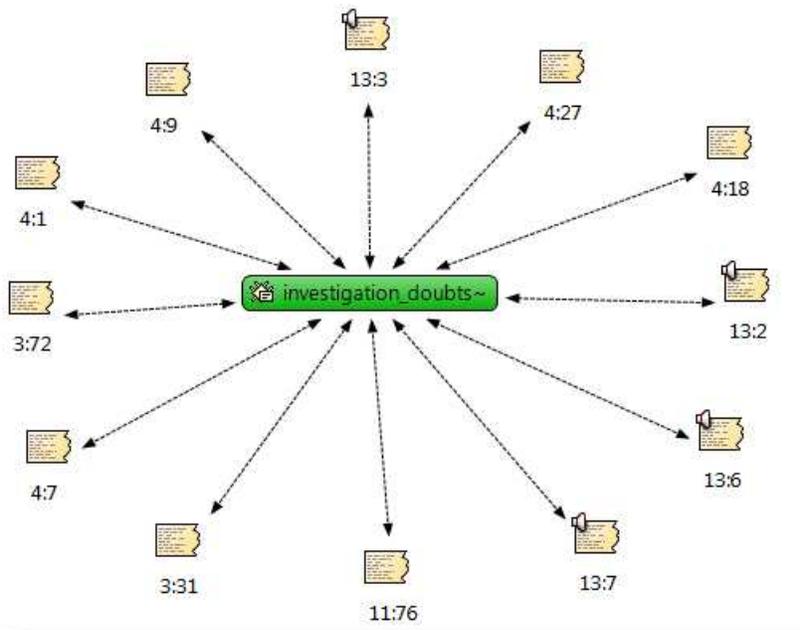


Figure 60: Code-quotations links

But you cannot name these links, the code is simply associated with a quotation through the act of coding. In a network view you can visualize these links. In

ATLAS.ti all unnamed links are referred to as weak links, all named links are referred to as strong links.

Strong and Weak Links

Strong links – or “first class” links – are links based on relations. Strong links are entities by themselves, with names, authors, comments, and other properties. A strong link is only a link between a code and another code or a quote and another quote.

Weak links are links that do not have individual properties, e.g., the links between quotations and codes, between codes and memos, between a family and its members.

Network vs. Network View

The difference between a ‘Network’ and a ‘Network View’ is an important distinction that is necessary to understand the way networks are handled within ATLAS.ti.

An ATLAS.ti network is the set of *all* objects and their links inside the Hermeneutic Unit (HU). It exists independently of any display-oriented characteristics (layout, color, line width, etc.). It is the *logical structure* of the HU's objects. It exists even before the first Network View is created.

A Network View is typically only a subset of this global structure of nodes and links combined with an individual layout of nodes. It is like viewing the same thing, i.e., the network, from different angles and with different pieces visible.

Network View
= logical
structure +
visual layout

Node Types

The user can manipulate and display almost all objects within the HU as nodes in a network view: quotations, codes, code families, memos, memo families, other network views, primary documents (PDs), and PD families.

Relations

ATLAS.ti allows you to establish *named links* to more clearly express the nature of the relationships between concepts. With named links, you may express a sentence like "a broken leg causes pain" by two nodes (the source node "broken leg" and the target node "pain") connected with a named link ("causes" or "is-cause-of").

The name of a link is displayed in the Network Editor as a label attached to the link midway between the two connected nodes. Six pre-set relations - or link types - are available in ATLAS.ti. These standard relations can be substituted, modified, or supplemented by user-defined relations. The default relations are listed in the table below. C1 and C2 are source and target nodes, respectively.

A default set of
relations is
provided. You
may define your
own.

Relation	Label 1	Label 2	Width	Color	Formal Attribute	Layout Direction
C1 is-associated-with C2	==	R	1	Black	Symmetric	→
C1 is-part-of C2	[]	G	1	Black	Transitive	↑

C1 is-cause-of C2	=>	N	1	Black	Transitive	↑
C1 contradicts C2	<>	A	1	Black	Symmetric	→
C1 is-a C2	Isa	0	2	Black	Transitive	↑
C1 noname C2			1	Black	Symmetric	→
C1 is-property-of C2	*}	P	1	Black	Asymmetric	↑

Some of these characteristics directly affect the display of links, while others affect processing (e.g., search routines, automatic layout). A link between concepts is displayed in a Network Editor by a line with the relation's label. You can choose from three different labels (label 1, label 2 and the name used for the menu when selecting a relation).

The "formal attribute" affects both the display and processing capabilities of a relation. For example: All asymmetric relations are symbolized in the Network Editor with an arrow pointing toward the target code. Symmetric relations are displayed with an arrow at both ends.

A typical transitive relation is the is-cause-of relation: if C1 is-cause-of C2 and C2 is-cause-of C3, it follows that C1 is-cause-of C3. Transitive relations also enable the "semantic retrieval" (see the chapter on the query tool in the full manual).

The following properties are user-definable: the two labels and the menu text, which can be used as alternative display options, the width and color of the line linking two nodes, whether a link is directed or non-directed, and the preferred layout direction. The preferred layout direction affects the layout of a network when ATLAS.ti automatically arranges the nodes.

Link vs. Relation

It is important to understand the difference between a relation (or a link type) and the link itself: There is only one "is part of" relation, but potentially many links *using* it. In the Network View below, the relation "consequence" is used only once, while the relation "strategy" is used four times.

Another way to think of links and relations is to view links as *instances* of relations. Links are well informed about the characteristics of relations, which define their styles. If a characteristic of a relation is changed (e.g., line width, color, symbol), these changes are propagated to all links using it.

Relations are like "styles" in a word processor. Changing the style will change all occurrences of its usage, in this case: the links

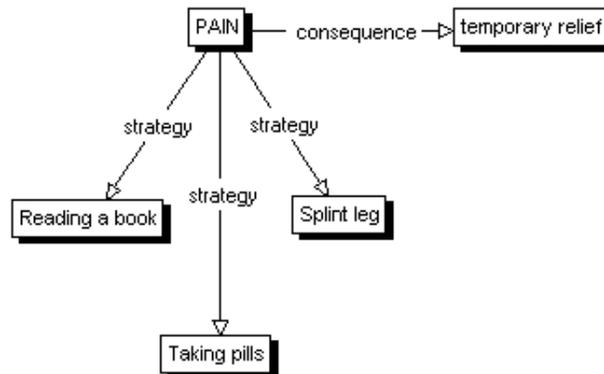


Figure 61: Four links using two relations, "strategy" and "consequence"

The Role of Relations

It is useful to understand the role that relations play in the construction of a theory. The concepts (codes) that are linked using relations represent aspects of the problem domain under investigation. On the other hand, the relations used to link these domain concepts are part of the methodology used to analyze the phenomena. As important epistemological tools they constitute the main questions that guide the development of a model or a theory.

Define your own "epistemological primitives."

The "Grounded Theory" method of Glaser & Strauss uses relations like "is-phenomenon," "is-context-of," "is-consequence-of," "is-condition-for," "is-strategy-for," etc., to relate concepts found during the data-oriented *open coding* phase.

In the analysis of argumentation structures, other relations are more suitable: e.g., "is evidence of," "is contradictory to," "warrants," etc. A medical expert attempting to capture diagnostic knowledge would use, e.g., "is-symptom-of," and "is medication for." You can create user-defined relations in the relation editor that you can access via the main menu's Network menu. (For further detail, see the full manual, <http://manual.atlasti.com>).

The Network Editor

The Network Editor lets you visually connect codes and other objects to create semantic networks or hypertext webs.

The Network Editor offers an intuitive and powerful method to create and manipulate network structures. It favors a direct manipulation technique: You can literally "grab" codes, quotations, memos, or other objects using your cursor and move them around the screen as well as draw and cut links between them.

The following describes various methods available for creating and editing Network Views.

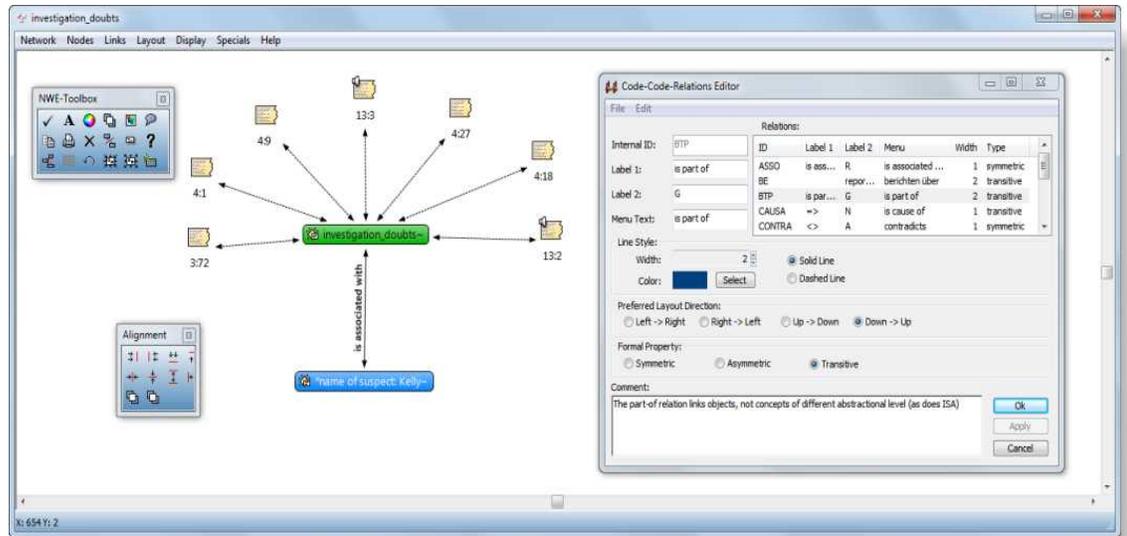


Figure 62: The Network Editor and its helpers

The Network Editor has two "helper" windows ("NWE-Toolbox" and "Alignment Tool") that offer convenient support for some tasks.

The Relation Editor for maintaining the relation "database," and for creating and editing relations is described in a separate chapter in the full manual



Figure 63: Network view as node



Figure 64: Using modifier codes for case-based network views

Basic Network View Procedures

Creating Network Views

Two methods for creating Network Views are available. The first one creates an empty Network View into which objects are imported in sequential steps. The other method creates a Network View from a selected object and its neighbors.

To create a new Network View

Select **NETWORKS / NEW NETWORK VIEW** from the HU editor's main menu or from the drop down list offered by the Network button in the main toolbar.

- Enter a name for the new Network View. A Network Editor opens.
- Import nodes with any of the methods described in the section “ Nodes” below.

To open a Network View on an Object

A Network View for an object is created with a selected object and its neighbors. Proceed as follows:

- Open an Object Manager (e.g., the Code Manager), or the Object Explorer, or right click on an object in the margin area.
- Select one or more objects with a left mouse click.
- In Object Managers, you can click the network button. For an object selected in the Object Explorer, select **OPEN NETWORK VIEW** from the context menu
- A Network Editor opens with the selected object and its neighbors.



If multiple objects are selected, their neighbors are not automatically included in the network view. You can import their neighbors in a subsequent step.

The nodes are initially placed using the semantic layout procedure, but can be rearranged manually.

More nodes can be added to this Network View using different techniques (see “ Nodes” on page 106 for details).

Each time a network is opened on a selected object, a new Network View is created. There is no need to save it, as you can easily display it at any time following the steps above. If you rearrange the nodes and want to preserve the new layout, or if you add or remove nodes, then you need to save it explicitly (**NETWORK / SAVE AS**). Saved Network Views can be selected from the pick list or the Network View Manager.

Adding Nodes to a Network View

There are several options available for including objects in a Network View.

Via Drag & Drop

From Object Managers, the Object Explorer or the margin area: You can add nodes by dragging objects from Object Managers, the Network View Manager, the Family Manager, the margin, or the Object Explorer into the Network Editor. Drag & drop gives you better control of the initial position of the imported nodes.

- Open the Network View to which you want new objects imported.
- Open the manager(s) for objects (code list, memo list, etc.) that you want to import into a Network View.
- Select the node(s) you want to import into the Network View.
- Drag the selected objects into the Network Editor.

Drag selections of a primary text: This method creates nodes from textual quotations or new selections of text.

- Open the PD that contains the text that you want to import into a Network View.
- Make a selection within the PD or select an existing quotation.
- Drag the selected text into the Network Editor.
- Release the mouse button at the position you want the new node to be placed. A new node is created and displayed. If a quotation did not yet exist for the selection of text, it will now be created.

Drag text from other applications: This method allows you to drag text from drag & drop-compliant applications like Word™ into a Network Editor. Text dragged from Word™ is converted into a new memo and displayed as a node.

- Open the application from which you want to drag selections of text in to a Network Editor.
- Mark the piece of text within the (other) application.
- Move the mouse pointer over the selected text. The pointer changes its appearance
- Hold down the left mouse button and drag the selected text into the Network Editor.
- Release the mouse button at the position you want the new node to be placed with its upper left corner. A new node is created and displayed.



Text dragged from other applications becomes a memo.
Text dragged from the PD pane becomes a quotation.

Via the Import Nodes dialog

The Import Nodes window offers access to all available node types. The list pane offers a context menu to select or deselect all displayed objects.

- Choose **NODES / IMPORT NODES** from the Network Editor's menu. A window opens, offering objects to be imported. Only objects that are not already members of the present view are listed.
- First, select the type of node you want listed in the list pane from the node-type drop-down list.



Figure 65: Import nodes window

- Select the objects to be imported into the Network View.
- Click Import.

The imported objects are placed along the upper left corner of the Network Editor. You can either distribute them manually by moving each node with the mouse, or you can place them automatically by (mis-)using the option **LAYOUT / SEMANTIC LAYOUT**.

Linking Nodes

The links between nodes in a network are real connections between the objects. Therefore, creating and removing links should not be regarded as solely "cosmetic" operations. Links make permanent changes to the HU.

There are several ways to link nodes:

To link two nodes using the toolbar icon

- Select a node in a network view and click on the Link button in the toolbar.
- A red "rupper band" appears. Move the cross that you see at the end of the line on top of another node and left click.
- If you link two codes to each other or two quotations, then a list of relations pops up. Select one of the offered relations via a left click.



Set of standard code-code relations	Set of standard quote-quote relations
== : is associated with	>>>> : continued by
[] : is part of	X> : contradicts
=> : is cause of	-> : criticizes
<> : contradicts	:> : discusses
isa : is a	? : expands
: noname	?> : explains
*} : is property of	!> : justifies
	*> : supports

Figure 66: Linking two nodes

The two nodes are now linked to each other. In case of a first-class link between two codes or between two quotations, the relation name is displayed either within the link line, above the line (rotated) or within a box.

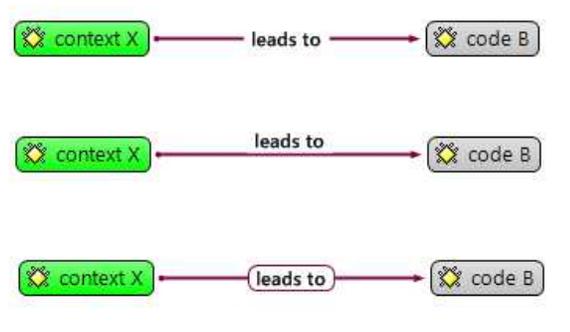


Figure 67: Display options for link labels

You can set the link display options under **DISPLAY / LINK DISPLAY**.

Cutting Links

Several approaches to disconnecting previously linked nodes are available.

The first method works for all types of links and is useful when many nodes linked to one other node are to be disconnected:

- Select one or more nodes whose connections to another node are to be removed.
- Choose **LINKS / CUT LINKS** from the Network Editor's menu or click on the Cut Links button in the toolbar.
- Move the mouse pointer with the "rubber bands" to the target node.
- Click the left mouse button

Alternatively:

- Click on one or more link labels.



- Choose **LINKS / CUT LINKS** from the Network Editor's menu or click on the Cut Links button in the toolbar.

Or:

- Move the mouse pointer over a link label.
- Right click and choose **CUT LINK** from the context menu.

The latter two methods work on "first class" links only: code-code or quote-quote ("hyper") links.

Modifying Links

The type of a link (e.g., its Relation) can be changed in the Network Editor.

- Right click on a link label and select **CHANGE RELATION** from the context menu.
- The relation menu pops up. Select a different relation.

A very efficient way to manipulate first class links is offered by the Link Managers that you can access via the main menu's Network menu.

'Removing Nodes' will not delete the objects they represent! The option 'Delete Node,' however, does!!

To remove nodes from a Network View

- Select the nodes to be excluded from the view.
- From the Network Editor's main menu, choose **NODES / REMOVE NODES FROM VIEW** or press Ctrl-Del on the keyboard. If you only want to exclude a single node, you may also choose this option from the node's context menu.

To delete nodes from a Network View

- Select the nodes to be deleted permanently from your HU.
- From the Network Editor's main menu, choose **NODES / DELETE NODE**.
- Confirm the deletion process as it is a critical action. Deleting a node from a network view means that you permanently delete this object from your HU! This can be useful, when you have been adding new objects to a network view for exploratory purposes. Use this option with care.

For this operation, no undo option is available. The only way to undo a false deletion is to close the HU without saving it and to open the most recent version or backup.

If you only want to exclude nodes from a Network View, do not select **DELETE NODE** from the node's context menu or **DELETE ENTITIES** from the main menu. Select the **REMOVE FROM VIEW** option.

Simple analytic functions

Import Node Neighbors

This method imports all direct neighbors of the selected nodes into the Network View. This option is also available from the node's context menu. Importing direct neighbors allows you to construct a *connected* Network View step-by-step. (In a connected graph, there is always a direct or indirect path between any two nodes.)

To import neighbors of selected nodes:

- Select the node(s) whose neighbors are to be included in the Network View.
- Choose **NODES / IMPORT NEIGHBORS** from the menu.

Hold down the **Ctrl** key to suppress the import of quotations.

This procedure imports neighbors of all types. If a code with many quotations is selected, this operation might fill the Network Editor with unwanted quotation nodes. To suppress the import of quotations, hold down the **CTRL** key when issuing this command.

Import neighbors can be undone.
Shortcut: Ctrl-Shift-Z.

If you have mistakenly imported the wrong or too many node neighbors, select **NODES / UNDO IMPORT NEIGHBORS** from the menu, or press the key combination Ctrl-Shift-Z.

Import Co-occurring Codes

For code nodes, there is a special import feature that exploits the spatial relations of different codings. A code co-occurs with another if it has been used to code quotations that are in close proximity: embedded, overlapping, or if two or more codes are applied to the same quotation.

The proximity of coding applied to a text can also be exploited via the Query Tool's "co-occurrence" proximity operator. However, while the Query Tool yields quotations for explicitly specified codes, the import function brings in only the codes.

To import co-occurring codes:

- Select one or more codes in the Network Editor.
- Choose **NODES / IMPORT CO-OCCURRING CODES** from the Network Editor's menu.

Creating Output

Several output options are available for Network Views. The range is from printing the layout (via copying to the clipboard in a variety of formats both textual and graphical) and by saving a Network View to a file.

Printing Networks

Before printing a Network View the first time, you may prefer to set some general options (include title, print border, etc.) (**SPECIALS / PREFERENCES / PRINTING**).

You can either print the entirety or part of a Network View.

- Open the Network View and arrange all nodes to be printed.
- If you want to print a selection of nodes only, select these nodes (for multiple selection, hold down the Ctrl key).
- Choose **NETWORK / PRINT NETWORK VIEW** from the Network Editor's menu.
- In the Printer dialog window that opens, check "Selection" to print selected nodes only.

If the size of the network view determined by the node layout exceeds a single page, depending on current printer settings, scaling or multi-page print will be offered as a choice.

- Make your choice and the network view will be printed.

Network Views for other Applications

Copy to Clipboard

The menu option **NETWORK / COPY TO CLIPBOARD** copies the network view to the Windows clipboard. From the clipboard it can be included in Word or other "foreign" documents. The Network View (all nodes or selected nodes only) is copied to the clipboard in a variety of formats:

- A textual description of the contained nodes (a node synopsis)
- An Windows Enhanced Metafile for high quality graphics to be used in reports. Depending on the processing capabilities of the target application, results may sometimes be less than optimal.
- A bitmap file that has more accurate layout and fonts, but less quality when printed.

In other applications (Word, PowerPoint, etc) a selection or all of these formats are offered via **PASTE SPECIAL**.

Save Network View as Graphic File

You can save your Network View as a graphic file, either as a bitmap (BMP) or as a Windows Enhanced Meta file (EMF). You can insert this file into reports, Word, PowerPoint, etc. Choose **NETWORK / SAVE AS GRAPHICS FILE**.

This function does not save the network as a reusable structure for import to other HUs.

- Select all quotation nodes that should no longer be referenced by the original node. In the above example, number magic remains only linked to quotation (1:29), Magic 7 remains linked to quotations 1:2, 1:3 and 1:4. All other quotations are linked to Magic 3.



Select **LINKS / CUT LINKS** from the menu or use the unlink button in the toolbar. Red “rubber bands” appear, connecting the selected nodes with the mouse cursor. Move the mouse pointer over code node that should not longer be linked with these quotations. This unlinks all selected nodes from the original code.

Hypertext

A network with text (or other media) as nodes is often referred to as a *hypertext*. The original sequential text is de-linearized, broken down into pieces that are then reconnected, making it possible to traverse from one piece of data to another piece of data regardless of their original positions.

The procedures described so far have focused on the creation of *code* networks. Direct linking of data-segments (quotations) to other data-segments offers similar flexibility in choosing and defining relations. Almost all of the editing functions described for code networks can also be used when connecting two or more quotations.

Code-code and quote-quote links are the only types of network connections that allow you to assign a name to the connection that appears on the line or arrow that runs between the objects.

Representing the “Rhetoric of Text”

*While a code offers fast access to sets of data segments, it defines only a simple relation between them, namely **equivalence**.*

Hyperlinks, which directly relate data segments, express more differentiated relationships between quotations: contradiction, support, illustration, etc.

No code is needed to connect quotation Q1 with one that it contradicts (Q2).

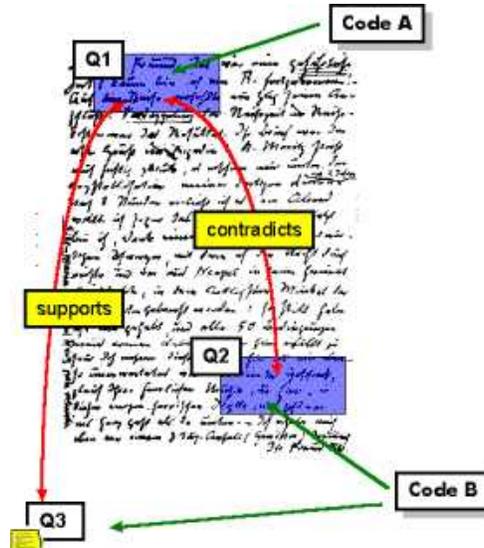


Figure 68: Hypertext captures the macrostructure of a text

Today's largest hypertext system: the World Wide Web

Cross-references between text passages are very common even in conventional media like books - just think of religious and juridical texts, literature, journals etc. Footnotes and endnotes are another common deviation from the pure linearity of sequential text. However, in conventional media, not much navigational support is provided for "traversing" between the pieces of data that reference each other.

Computer-related hypertext applications include, for example, online help systems that display operational information in suitable small chunks (compared to lengthy printed information), but with a considerable amount of linkage to other pieces of information. A well-known hypermedia structure is the **World Wide Web** with its textual, graphical and other multimedia information distributed world-wide.

Benefits of Hypertext

What are the advantages of direct connections between text segments, compared to the traditional procedures of qualitative text analysis?

What codes cannot do

Maybe we should ask a different question first: How can you express that statement X in text A *contradicts* statement Y in text B, or how can you retrieve all contradictory statements of a specific utterance if all you have is codes and their associations with the data?

Pure classification is not always adequate

The "code & retrieve" paradigm, which is so prevalent for many systems supporting the qualitative researcher, is not adequate for certain types of analysis. In formal terms, attaching codes to chunks of data creates named sets of segments with almost no internal structure. This is not to say that partitioning lots of text segments into sets is not useful. On the contrary, classification leads to manageable amounts of segments that later can be

Hypertext
makes text-text
relations explicit

retrieved with the help of the attached code words. But this may not be the only way you want to look at your data.

The concept of hypertext introduces explicit relations between passages. These links have to be built manually and result from an intellectual effort. The system cannot decide for you that segment x is in contradiction to segment y. But after the work of establishing the links, you can make semantically richer retrievals: "Show statements contrary to statement x." Hypertext allows you to create different paths through the data you are analyzing. For example, you may create a timeline different from the strict sequence of the original text.

Graphical Hyperlink Maps

ATLAS.ti incorporates procedures for creating and browsing hypertext structures. It allows for two or more quotations being connected using *named* relations. Further, you can create graphical maps (using Network Views) to make parts of your hyperspace accessible in a comfortable way. Hyperlinks may connect quotations (textual, graphical, multimedia) across documents (inter-textual links) or may link segments within the same primary document (intra-textual links). The natural boundary for hyperlinks, like all structures in ATLAS.ti, is the Hermeneutic Unit.

The hypertext Network View to the right displays quotations in maximum "verbosity" set to "full text." Other node types can also be included in the Network View, like the memo in the upper left corner.

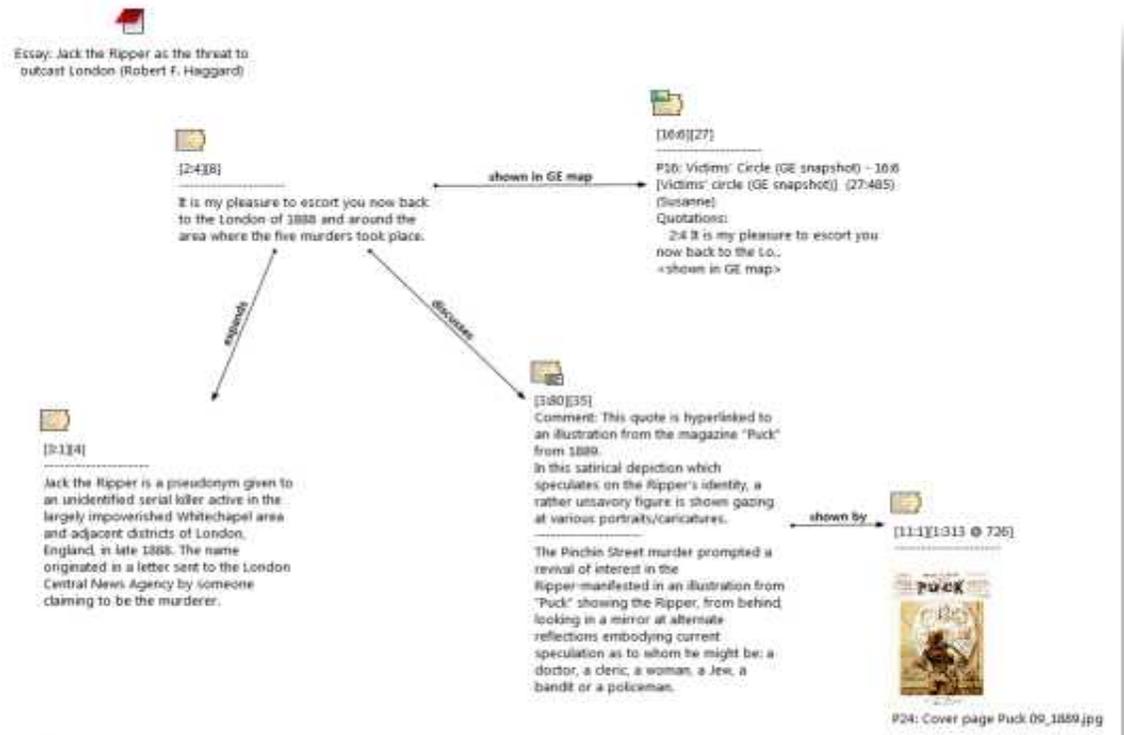


Figure 69: A network of quotations

General Procedures

Star or Chain connections

A hyperlink chain connects quotations sequentially

When linking quotations, you have the option to create a "chain", a "star" or a combination of both. Below, a chain and star connection are illustrated.

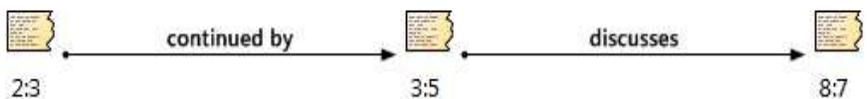


Figure 70: A hyperlink chain

When creating this chain, the quotation 2:3 served as a source quotation and was linked to the target quotation 3:5. In order to continue the chain, the target quotation 3,5 became the source quotation and was linked to the new target quotation 8:7..

A hyperlink star connects many quotations from one source quotation:

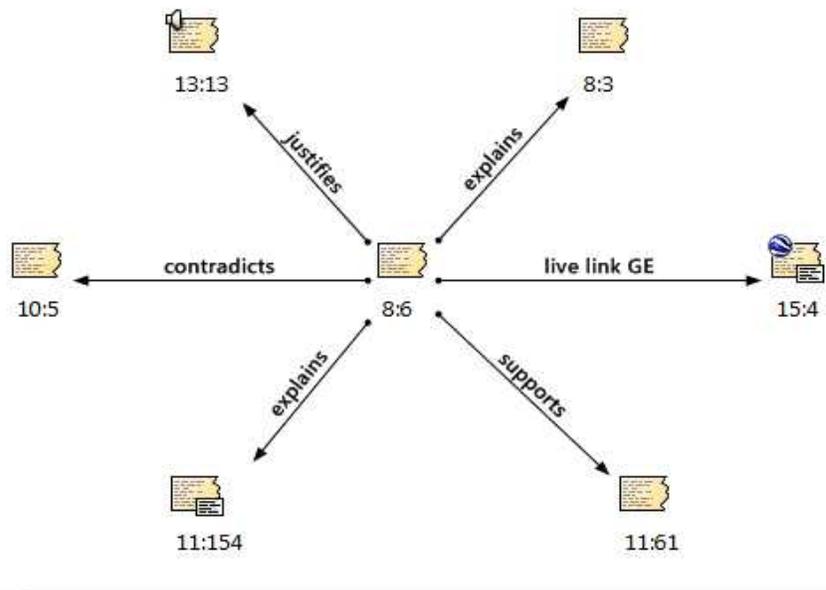


Figure 71: A hyperlink star

When creating a star, there is one source quotation and multiple target quotations. In the above example, the source quotation is 8:6, which is linked to five target quotations via a number of different relations.

Hyperlinks in the Quotation Manager

All hyperlinked quotations can easily be recognized in the Quotation Manager. All source quotations are marked with an opening angle bracket <, all target quotations with a closing bracket >. If a quotation is both, source and target (as the case when creating chains), then both brackets are used as prefix <>.

In list views, linked quotations are prefixed with angle brackets.

```

<16:1 Berner Street, 3. murder (346:397)
<16:2 Buck's Row, 1. murder (103:152)
<>16:3 Hanbury Street, 2. murder (84:135)
<16:4 Mitre Square, 4. murder (350:404)
<16:5 Dorset Street, 5. murder (136:190)
>16:6 Victims' circle (GE snapshot) (27:485)
  
```

Figure 72: List of linked quotations

Hyperlinks in the Margin Area

When working with hyperlinks, it is advisable to set the margin display options as follows:

The margin is an optimal work space for navigating hyperlinks



Figure 73: Display of hyperlinks in the margin area

To open this context menu, right click on a blank space in the margin area.

Creating Hyperlinks

ATLAS.ti offers a variety of options for creating and traversing hypertext links. Similar to the linking of codes, you may create hyperlinks in the Network View editor (see "Linking Nodes" on page 108). In addition, hypertext links can be created "in context", or via Drag & Drag in the Quotation Manager and in the margin area.

Creating Hyperlinks using the context menu

To create a chain:



- Select a data segment as source or an already existing quotation.
- Right click on the selection or the quotation and select the option **CREATE LINK SOURCE** from the context menu. Alternatively, you can click on the *Source Anchor* button in the primary document toolbar.
- Select a target segment or an existing quotation as target, right click and select the option **CREATE LINK TARGET** from the context menu. Alternatively, you can click on the *Source Anchor* button in the primary document toolbar.

If you select a data segment as source or target that was not yet a quotation, ATLAS.ti automatically creates a quotation from it.

- A list of relation pops up. Select a relation to link the two selected quotations. If none of the existing relations fit, create a new relation by selecting **OPEN RELATION EDITOR**.

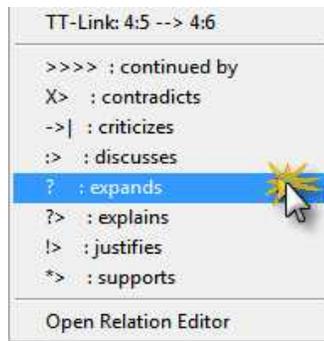


Figure 74: Select a relation to link the source with the target quotation

Select the option **CHAIN** to link a next data segment to the current target quotation. Select **FINI** to end the chain.

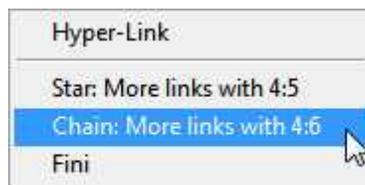


Figure 75: Select "Chain" to link another quotation to the current target quotation

To create a star:

Proceed as explained above "To create a chain:", but select the option **Star**. Then the next quotation is linked to the current source quotation. For your information, the quotation IDs for the current source and target quotations are listed in the menu.

Creating Hyperlinks in the Quotation Manager

This method can be applied to connect one or more existing quotations to one target quotation.

- Select one or more source quotations in the Quotation Manager (multiple selections can be done in the standard way).
- Hold down the left mouse button and drag the quotation(s) to a target quotation in the Quotation Manager.
- Release the left mouse button. The Relation menu opens and you can specify the relation to be used for the hyperlinks.
- The new hyperlinks are created.

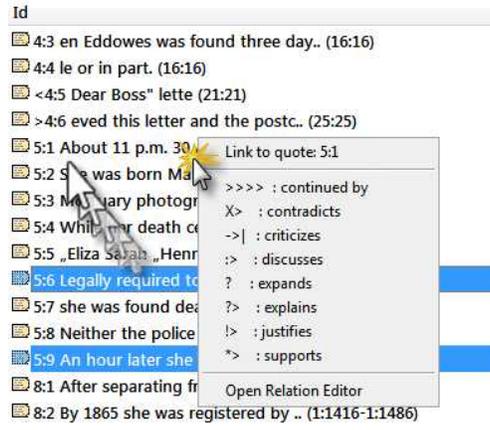


Figure 76: Select quotations, drag and click target quotation in the Quotation Manager

Defining New Hyperlink Relations

The procedure for defining or editing hypertext relations is equivalent to the methods described for editing code-code relations. You may either define a new relation by choosing the bottom option from the list of relations when actually creating a link, or you may use a hyper-links relation editor, that is identical to the code-code relations editor. Newly defined or edited relations must also be saved to disk.

Traversing Hyperlinks

Media-type quotations can be distinguished easily by their icons. These icons may be used in the margin area, the Object Manager, the Object Explorer, the Crawler, and in Network Views. The figure below shows the media types of hyperlinked quotations in the margin. From top to bottom these are: text, video, audio, image and Google Earth hyperlinks.



Figure 77: Media types for hyperlinks

To traverse hypertext links using the margin area

- Switch on the margin area.

The margin area permits a very intuitive traversal of hyper links.

If needed, open up the properties context menu in the margin area and select **OBJECT TYPES / HYPERLINKS**.

Double-click a hyperlink displayed in the margin. The quotation to the left of the margin area is highlighted and a pop-up window displays the hyperlink's contents.

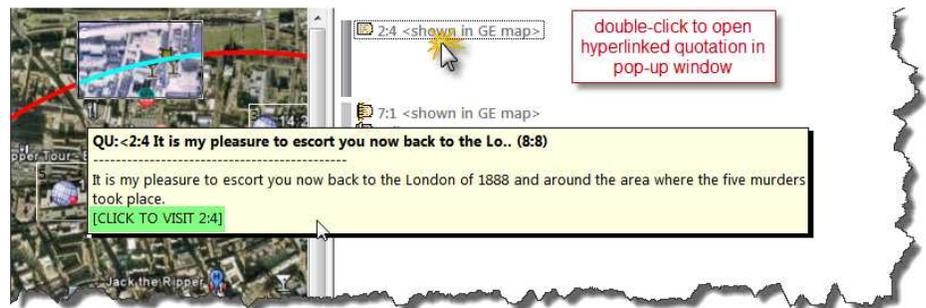


Figure 78: Traversing hyperlinks

To display the hyperlink in context, click into the pop-up window. Clicking outside the pop-up window cancels the process.

When you double-click on a multimedia hyperlink in the margin, you do not see the usual info text popping up. Instead, the quotation is played directly without opening the Media Control window.

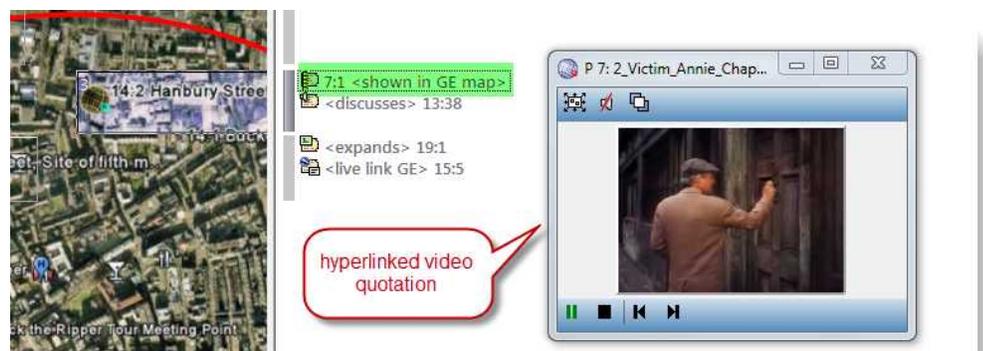


Figure 79: Hyperlinked video quotation

The "In-Place" Method for audio- and video hyperlinks

You may "travel" directly from a highlighted "Hyper"-quotation to its neighbors. This is especially useful for video and audio quotation where you do not have a margin area, but can also be used for other media types.

To display hyperlinked neighbors "in-place"

Activate a quotation with a double-click in the Quotation Manager.

- Move the mouse cursor into the highlighted area of the document and click the right mouse button.
- From the context menu choose **Show Links**.

Steps one and two can be combined by pressing the Ctrl key while clicking the right mouse button.

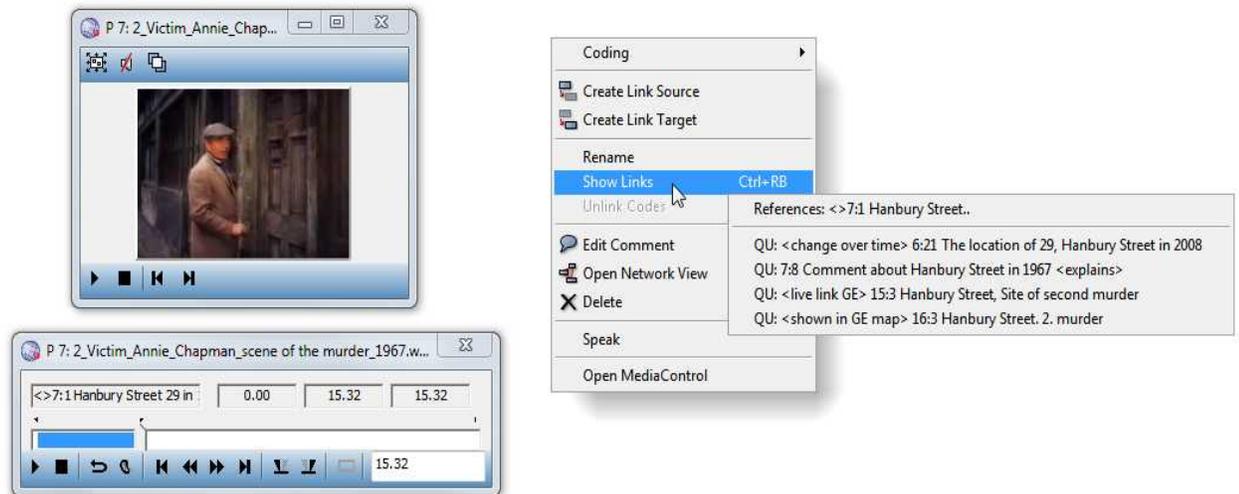


Figure 80: Checking for and jumping to hyperlinked quotations

- The quotation "on the other end" of the hyperlink is displayed in a pop-up window.
- To directly move to this quotation in context, click into the pop-up display, or click outside the pop-up to cancel.

Generating Output

This chapter provides an overview of all output options that are available within ATLAS.ti. In addition, some general procedures common to most output functions are explained.

Overview

ATLAS.ti offers numerous options to create output and reports. Most output is textual, but numeric or graphical output is also available where applicable (Network Editor). Typical textual reports include sorted and filtered lists of objects, like code, memos, families and quotations. Comments can often be included when needed.

For textual primary documents a near what-you-see-is-what-you-get (WYSIWYG) output is available, including the annotations populating the margin area.

Output options are available from the menus of the tools, e.g., the HU Editor's menus, the Object Manager's and Object Explorer's menus. Some tools offer an output button, either as the only option (e.g., the Query Tool) or in addition to the menus (Code Manager).

The target of an output is not necessarily restricted to the printer. Many of the text-related report procedures allow output to be directed to a text editor, the printer, or a file.

Other kinds of output are not necessarily intended to be printed directly but are to be processed by other applications, like the SPSS export option, several Excel compatible outputs, and HTML and XML export. You can find those procedures in chapter "Export & Import" on page 130.

General Procedure

Output Destinations

When creating textual output or when creating text-based exports, the following dialog is usually displayed in the course of the process:

You can send output to:



Figure 81: Common output options

Editor: The output will be displayed within a text editor. This option is useful if modifications are needed before actually sending it to the printer or if you are unsure about the size of the result.

Printer : If you select this option, the output will be printed (the printer dialog window opens where you may select the desired print options).

File: If you select this option, the output will be saved to a file (a save file dialog opens).

File & Run: If you select the last option the file dialog window opens. After it has been saved, the file will be opened by the application registered for its extension. (e.g., a CSV or xls file will be opened in Excel™).

Report Layout

Common Header

When creating textual reports, a common header precedes the list of objects (e.g., all codes or all quotations for a selected code).

The header includes information about the kind of report (“All current quotations”), the HU (name and file path), the current user, the date and time of the creation of the report and the current filter if any.

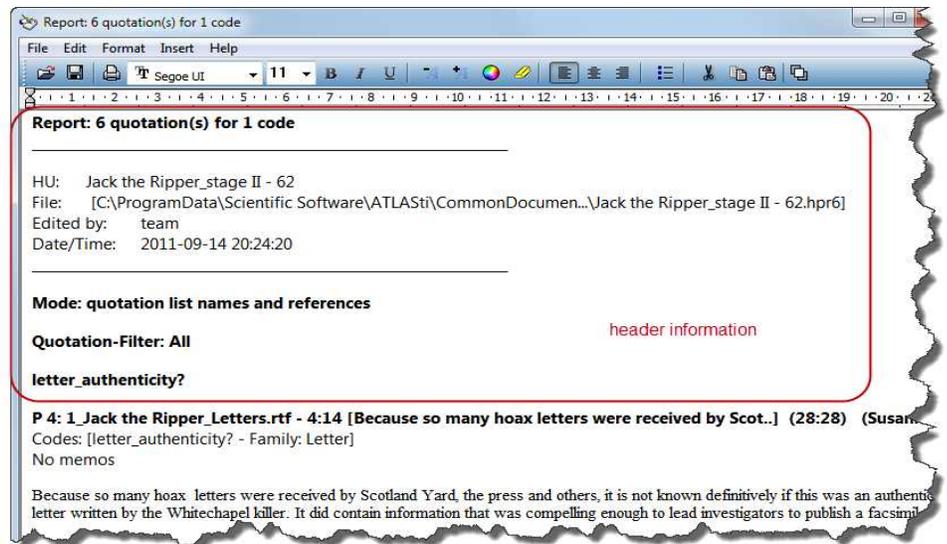


Figure 82: Report header information

Sorts & Filters

Many list reports are affected by the currently active filter for the reported objects. For instance, if the primary document's filter is set to a specific family, creating a report of "All" quotations yields only those quotations for primary documents within that specific family.

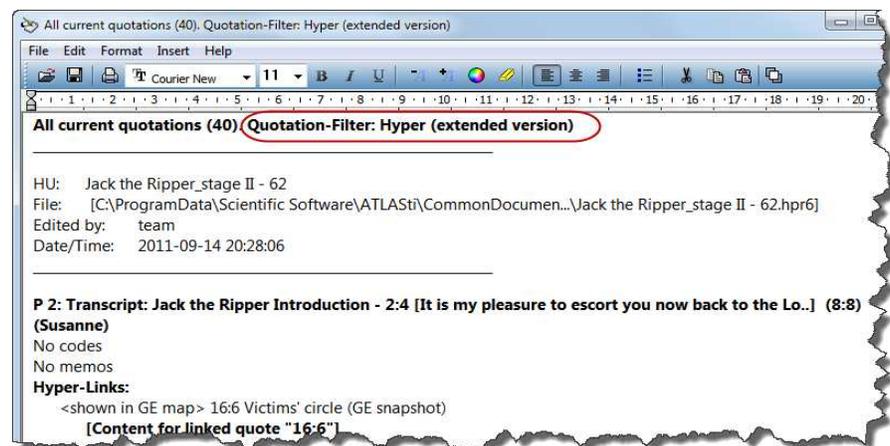


Figure 83: Output of hyperlinked quotations

The figure above shows the report generated after setting the the quotation filter to "Hyper-linked." The quotation filter is displayed in the header.

Restricting Output to Selected Objects

Output options for selected objects available from the HU Editor's menus are restricted to a single object. For example, you can print one code at a time. Output options within the Object Manager allow you to select multiple objects

and output each of them at the same time. For example, you can highlight three codes within the Code Manager and create a report that contains quotations coded to each of the three codes. Another option to restrict output is to work with filters.

The output options for the four main object types are explained in detail in the full manual.

Creating Reports with the XML Converter

If you create an XML output file, it can be read by other applications that support XML. One main advantage is that the application can define autonomously and completely detached from any display information contained in the document what parts of the structure are to be displayed and what the display should look like. This is commonly achieved with the help of so-called style sheets.

Style sheets are a way of prescribing how the content of your XML source file should be rendered. This can range from very simple layout commands (“show all elements of type X in red”) to quite complex programming logic (“create an entire website in which each element of type X displays its sub-content on a single page, along with navigation, layout, interactive elements”).

ATLAS.ti already comes with a number of such style sheets for you to use, but also to explore and potentially to expand on by copying and extending their functionality for your specific purposes. Once you understand the principle, you will see what an enormously powerful and flexible tool has been put at your disposal with these little programs. All style sheets are written in XSLT, a special language designed for transforming XML content and maintained by the World Wide Web Consortium (“W3C”).

See also: <http://www.atlasti.com/xml.html>

Working with Style Sheets

ATLAS.ti offers a number of style sheets ready for you to use. Below the general procedure is explained and then a few examples of the most commonly used style sheets and the resulting output is shown.

Click on the down arrow next to the XML button in the main toolbar and select **APPLY STYLE SHEET** (or select main menu option **Tools / XML**):

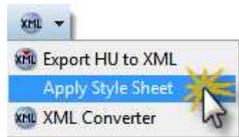


Figure 84: Select the option 'Apply Style Sheet' to make use of existing style sheets

Select a style sheet from the list displayed.

Next you are asked which parts of the HU you want to convert to XML. If you select a style sheet that only shows codes with comments or a list of objects, then you do not have to include the full content of the primary documents.

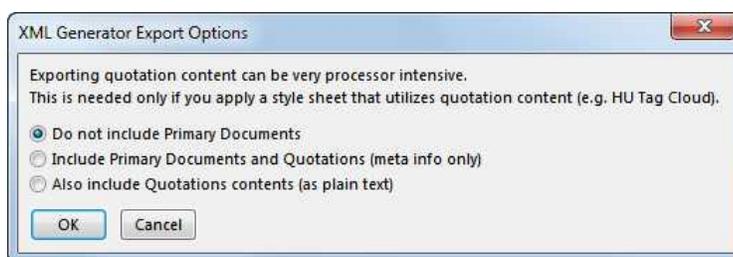


Figure 85: XML export options

An HTML file is generated as your output file. A file dialog opens offering to store the file in the ATLAS.ti XML folder. For the file to be displayed properly including all colors and images as defined by the style sheet, store the file at this location. You can accept the suggested default name or enter a different one. Then click the **S**ave button.

The output is displayed in your web browser (Internet Explorer by default; results may vary in different browsers).

Example: Code book

The style sheet **Modern Codes - a report of codes with comments** can be used to create a code book in table format. It displays all codes including creation date and author information in the first column of the table and the code definitions that you have written in the comment fields of each code in the second column.

If you don't want date and author information displayed in the table, you can modify the style sheet accordingly.

Commented Codes	
No. of commented Codes: 58	
*date of murder Susanne 08-11-2009	Note: This code list is structured as follows: Main categories and subcategories were used within this list (this is not a requirement; you are obviously free to structure your own list to suit your needs!), and are separated by an underscore or a colon. All terms preceding the underscore or colon indicate the code category name; the terms following the symbol constitute subcategories. As category and subcategory names may contain more than one word, an empty space cannot be used to separate the two levels of coding. The symbols used here (underscore/colon) have no syntactic function. Additional sublevels may also
*historic context Susanne 08-11-2009	Description of the time period (economic situation, living conditions, etc.) during which the Legendary Jack the Ripper murders occurred.
*name of suspect Susanne 08-12-2009	http://www.casebook.org/suspects/
*name of suspect: Cohen Susanne 08-21-2009	http://www.casebook.org/suspects/davidcohen.html Note: This code list is structured as follows: Main categories and subcategories were used within this list (this is not a requirement; you are obviously free to structure your own list to suit your needs!), and are separated by underscores or colons. All terms preceding the underscore indicate the code category name; the terms following the underscore constitute subcategories. As category and subcategory names may contain more than one word, an empty space cannot be used to separate the two levels of coding. The symbols used here (underscore/colon) have no syntactic function. Additional sublevels may also
*name of suspect: Feigenbaum Susanne 08-21-2009	http://www.casebook.org/suspects/carl-feigenbaum.html

Figure 86: Use the style sheet 'Modern codes' to create a code book

You can copy and paste this table from Internet Explorer into a MS Word document or other applications and, if desired, add some further formatting.

When exporting quotations from PDF documents, you may have to correct the formatting in Word and delete unnecessary hard returns. The original layout is of course lost as the table only contains plain text. As mentioned above, you can simply copy and paste the table(s) from the Explorer to a word processing program and edit them there.

Export & Import

This chapter provides an overview of procedures to export/import data and structures between ATLAS.ti and other software. The export procedures introduced in this chapter are not always clearly distinguishable from the chapter “Generating Output” on page 124. While the output options are generally display and print oriented, export of the HU or parts thereof allows for analysis of data and structures created with ATLAS.ti within other software packages.

SPSS Export

ATLAS.ti is intended primarily for supporting qualitative reasoning processes. On the other hand, especially with large amounts of data, it is sometimes useful to analyze the data in a quantitative manner using statistical approaches. ATLAS.ti provides an export function to permit further processing of the *syntax* file by SPSS®, the Statistical Package for the Social Sciences.

Export & Import using XML

Codes, memos, or entire HUs can be exported into the XML format. Exporting codes and memos as XML files allows you to transfer all or only selected codes or memos between HUs using the import function. Below a commonly used option to transfer a list of already defined codes is described. Additional options can be found in the full manual.

Exporting and Importing Codes in XML

Exporting Codes

The code's name, author, creation and modification date, as well as the query for super codes and their respective comments are included in the export format. However, no links to quotations or other objects are included. You can export all codes, or selected codes, or all codes that pass the current filter.

To export all codes (or all filtered codes),

- Choose **CODES / MISCELLANEOUS / EXPORT CODES (XML)** from the main menu.
- In the output target dialog select **FILE**. Confirm the default name, or enter a new file name, and save the file to disk

To export a list of selected codes,

- Open the Code Manager and select one or more codes.
- Choose **EXPORT SELECTED CODES (XML)** from the Code Manager's **MISCELLANEOUS** menu.
- In the output target dialog select **FILE**. Confirm the default name, or enter a new file name, and save the file to disk.

Importing Codes

When you import codes in XML format, additional information like the date of creation and modification, the author and code comments (in plain text only) are also imported.

This is how you do it:

- Select **CODES / MISCELLANEOUS/IMPORT CODES (XML)** from the main menu.
- A file dialog window opens. Select the XML file that you previously created and click the **OPEN** button.

Code colors are not preserved in the XML file. Thus, if you import codes and their comments via the XML option, you lose the coloring.

HTML Export

The HU to XML export and conversion utility allows an alternative and very powerful and flexible approach to creating web pages for users willing to learn how to “program” style sheets. Using HTML Export and specifying the layout using the HTML generator on the other hand is simply a matter of clicking options without any need to learn HTML.

Potential reasons for creating HTML versions of Hermeneutic Units include:

Create a web publication. Even intermediary results can be presented to other researchers without much effort. These reports are readable without needing ATLAS.ti on every system that has a web browser available.

Create a report. A convenient way to create a printout of (almost) all objects contained in a Hermeneutic Unit using a web browser.

ATLAS.ti's HTML code generation converts the Hermeneutic Unit currently being worked with into an HTML document. The user can control the HTML creation entirely via the HTML Preferences dialog box. Of course, the generated code can be edited and refined with a plain text editor or specialized HTML tools if you are knowledgeable in HTML.

Exporting an HU as HTML Document

Specify all desired characteristics using the ATLAS.ti HTML setup under **EXTRAS / GENERAL PREFERENCES / HTML PREFERENCES**.

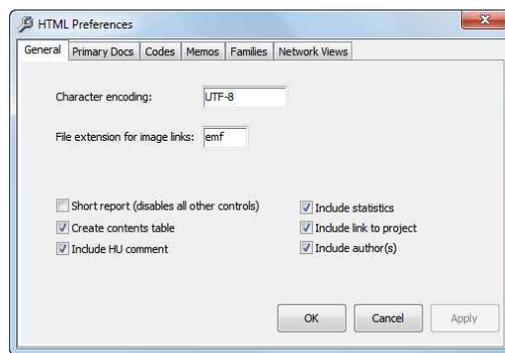


Figure 87: The HTML preference window

Select **EXTRAS / EXPORT TO / HTML** from the main menu.

Select **FILE & RUN** as the output destination to immediately open the generated output in a web browser. Select **EDITOR** if you want to modify the source before storing it.

Below you see an example of how an ATLAS.ti project in HTML format may look like:

Jack the Ripper_stage II - 62

Generator: ATLAS.ti WIN 6.2 (Build 27)
Date: 15.09.2011 19:32:59
Original project (ATLAS.ti needed): jack the ripper_stage ii - 62.acb (Copy Bundle format)

Table of Contents

- General
- Statistics
- Primary Documents
- Commented Codes
- Memos
- Network

Statistics:

- Co-Authors: 0
- Primary Texts: 22
- Quotations: 456
- Codes: 79
- Codings: 523
- Memos: 21
- Primary Document Families: 14
- Code Families: 13
- Memo Families: 0
- Network Views: 3
- Code-Code Links: 22
- Hyperlinks: 70

 **P 3: 1_Jack the Ripper_Story.rtf**

File name: 1_Jack the Ripper story.rtf (**media type:** richtext)

Comment: *Wikipedia entry on the legend of Jack the Ripper*

99 quotations

Codes (28): *date of murder, *historic context, *name of suspect, *name of victim, INVESTIGATION, investigation_doubts, investigation_suspected by whom, JACK THE RIPPER, Jack the Ripper_legend, modus operandi_cut throat, modus operandi_differences, modus operandi_mutilation, modus operandi_others, modus operandi_similarities, murder_profiling, murder_site, murder_weapon, murderer_serial killer, murderer_various persons, murders_canonical five, murders_more/less than five, murders_potentially attributed to JR, reason released: lack of evidence, reason suspected: knew victim, role of the media_legend building, role of the media_sensationalizing, victim: Emma Elizabeth Smith, victim: Martha Tabram

Commented Codes only:

-  **investigation_stolen evidence {4-0}~**
Information regarding evidence stolen from police records
-  **investigation_suspected by whom {37-0}~**
Persons (e.g. police investigators, journalists, historians or book authors) who suspect(ed) a specific person to be Jack the Ripper
-  **investigation_theories {15-0}~**
Various theories about Jack the Ripper's identity, motives, occupation, life and death
-  **investigation_theory by M. Fido {4-0}~**
Theory about the identity of Jack the Ripper

 ***Idea memo {0-Me-F} - Susanne**
Create a single idea memo...
Guesses, hunches, thoughts, dreams....
Instead of writing a separate memo for every new idea, collect all of your ideas in a single memo. If you have a hunch pertaining to a specific research topic, insert it into the appropriate research question memo. The overall aim of this suggested strategy should be to stay on track and revisit important thoughts with ease - and not to end up with an unmanageable number of memos with scattered bits and pieces of information which make it difficult to retrace your steps.

Figure 88: Example HTML output



The image shows a screenshot of a 'Table of Contents' menu. The menu has a dark green header with the text 'Table of Contents' in white. Below the header, there is a list of five items, each preceded by a small black dot: 'General', 'Statistics', 'Primary Documents', 'Commented Codes', and 'Network Views'. A mouse cursor, which is a yellow arrow with a black outline, is positioned over the 'Network Views' link. The entire menu is set against a light gray background with a subtle drop shadow.

- General
- Statistics
- Primary Documents
- Commented Codes
- Network Views

Figure 89: Jumping to the network view section by clicking on the link in the table of contents

Export and Import of Documents and their Attributes

Please refer to “PD-Family Table” on page 66 for details on how to bulk assign a large number of documents and associated families in Excel™ compatible CSV format.

Appendix

Useful Resources

The ATLAS.ti Website

<http://www.atlasti.com>

The ATLAS.ti website should be a regular place to visit. Here you will find important information such as video tutorials, additional documentation of various software features, workshop announcements, special service providers, and announcements of recent service packs and patches.

Quick Tour

<http://quicktour.atlasti.com>

To get started, we recommend to work your way through the Quick Tour. Within 1.5-2 hours, you get an overview of the main functions and an idea on how to conduct an analysis with ATLAS.ti. When you are ready to start your own project, use this “Mini Manual” as your continuing guide.

Full Manual and “How To” Documents

<http://manual.atlasti.com>

Find more detailed information on the various functions introduced in this manual, plus tips and tricks and special instructions on how to work with specific type of documents.

Video tutorials

<http://tutorials.atlasti.com>

If you like to learn via video tutorials, we offer a range of short videos on the following topics: Features and Interface, Getting started on a project, Coding, Visualizing – Working with Network Views and Hyperlinks.

Library

<http://library.atlasti.com>

The library contains a list of white papers by various authors (mostly ATLAS.ti trainers and consultants) extracted from past newsletters. Submissions are always welcome.

Knowledge Base

<http://kb.atlasti.com>

Search the knowledge base for immediate questions you may have related to licenses, installation, update procedures, trouble shooting or use-related questions. A quick search may already provide the answer without having to dig for an answer in the full manual.

Social Media

YouTube

<http://youtube.atlasti.com>

You find a growing number of video tutorials on the ATLAS.ti YouTube channel. So far videos are available in English and Spanish, other to come.

Facebook

<http://facebook.atlasti.com>

Stay updated with the latest news on product updates, special offers, new training materials, etc. by joining us on Facebook. We are also happy to hear from users via facebook. Stop by and let us know about your projects and experience with ATLAS.ti!

Twitter

<http://twitter.atlasti.com>

Follow us on Twitter for the most essential bits of information and announcements (version and service pack releases, special offers, training opportunities, etc.).

Newsroom

<http://newsroom.atlasti.com>

The newsroom aggregates all pertinent company news conveniently on a single platform. Press releases, articles and comments from the various ATLAS.ti profiles on social networking sites are agglomerated in real time. In addition, the newsroom lets you subscribe to available content via RSS so you're always up-to-date on what's going on with ATLAS.ti.

The Help Menu

You can access a number of resources via the ATLAS.ti Help menu:

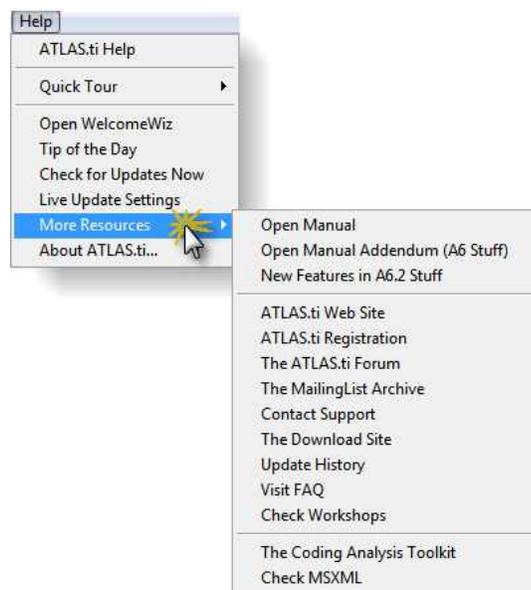


Figure 90: Accessing resources via the Help menu

The options provided via the More Resources sub menu may change over time reflecting the up-to-date status on documentations available. So it may be worthwhile to check this menu from time to time.

All options present links to internet web sites. Thus, you need to be online to access these resources. Apart from the Coding Analysis Toolkit (CAT), all other options are self-explanatory. Therefore, you find a brief introduction to CAT in the full manual (<http://manual.atlasti.com>).

Getting Support

<http://support.atlasti.com>

The easiest way to contact the Support Center is via the main menu option **HELP / MORE RESOURCES / CONTACT SUPPORT**. Or access the Support Center directly via the above URL.

From the categories provided, select the appropriate option so your request can be processed as quick as possible.



Figure 91: List of support channels

Frequently Asked Questions

Frequently asked questions are collected in our knowledge base on our website. To access the site directly from ATLAS.ti, select **HELP / MORE RESOURCES / VISIT FAQ** from the HU editor's main menu. An active Internet connection is required to access this web page.

Forum

<http://forum.atlasti.com>

ATLAS.ti maintains various a large forum for peer-to-peer communication, i.e. for users to (virtually) meet, exchange experiences with the tool, share tips and tricks, and discuss technical and methodological issues that arise with the use of the program.

Mailing List Archive

Like the forum, the mailing list is another tool for peer-to-peer discussion, advice, and tips. The complete mailing list archive can be conveniently accessed via **HELP / MORE RESOURCES / THE MAILINGLIST ARCHIVE**.

Troubleshooting

Help with Data Management Problems

Documents cannot be accessed

Please take a look at the sections on data management above.

If you are unable to solve a problem related to unloadable documents on your own, please create an accessibility report (see below) and send it to our support staff:

To create an accessibility report, select **DOCUMENTS / DATA SOURCE MANAGEMENT / ACCESSIBILITY REPORT**. Save the output as file and then contact the support center, e.g. via the **HELP / MORE RESOURCES** menu.

Embedded Objects Cannot be Activated

In order to activate objects embedded in primary documents, memos or comments, the object's application (e.g., Excel) needs to be installed. You might have received an HU created on another computer, which had the application installed. Another cause is that you may have uninstalled the application needed for activation.

Cannot Enter Edit Mode for Primary Documents

Currently, only RTF and plain text documents can be edited under ATLAS.ti's control. An assigned Word document (*.doc or docx) cannot be edited. To be able to edit a document created with Word, you need to save it from Word as a rich text document (*.rtf) before you assign the document.

If you have assigned a document in doc or docx format and are in need to edit it, you can turn it into an internal document.

- Highlight the entire document and copy it, e.g. Ctrl+C.
- Next, create a new internal document via **DOCUMENTS / DATA SOURCE MANAGEMENT / NEW TEXT DOCUMENT**. Enter a name for the document. The document will be loaded in edit mode.
- Paste the coded content of the doc or docx into the new text document. Then save and leave edit mode.
- Disconnect the assigned doc or docx file from the HU (right click on the document in the PDoc Manager and select the option **DISCONNECT**).

Reporting Bugs

Most errors that occur during the operation of ATLAS.ti are displayed and written to a special log file named ERROR.LOG. This text file is located in the user system directory.

The contents of this file can only be interpreted by the developers of the program and is of no use for others. If you file a bug report, you might be

asked to send a system report including this file to a specified support e-mail address.

The error report contains the following:

- The ERROR.LOG file.
- The System Report (which you can view via **EXTRAS / SYSTEM REPORT / DISPLAY SYSTEM REPORT**)
- The user's configuration file USER.INI.
- The ATLAS.ti configuration file ATLAS.INI.
- The list of files in ATLAS.ti's program folder.
- The list of files in the user's system folder.

The information in the package contains technical information needed for the technical support personnel to analyze and respond to reported problems. Except for the content of the ERROR.LOG, the system report and two INI files, no other file content is transferred.

To send an error report, from the main menu, select **EXTRAS / SYSTEM REPORT / CREATE AND MAIL REPORT**.

A message informs you that the report has been created and which files it includes. Click OK.

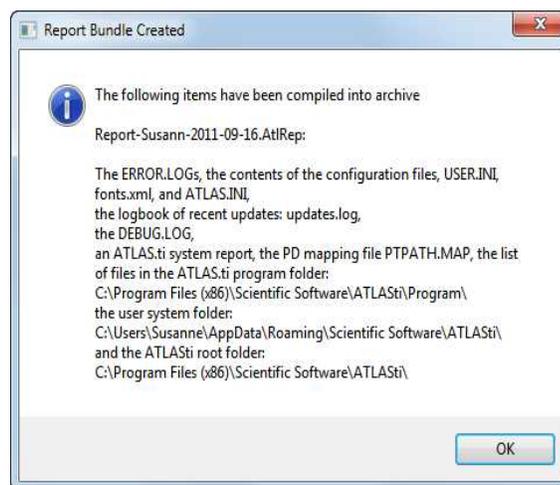


Figure 92: This message informs about about the files included in the bundle

ATLAS.ti launches your default email client and creates a new message addressed to an ATLAS.ti support address. The report file (Report-name-yyyy-mm-dd.AtlRep) should already be attached to the mail automatically. In cases where it isn't, please attach it manually (its exact location is indicated in the on-screen message).

The body of the message displays further instructions.

Add a description of your problem in the mail body. If possible, name any circumstances under which the problem occurred.

Make sure you have an active Internet connection.

Send the mail. Our support team will usually respond in less than 24 hours.

Service Packs & Patches – Live Update

Program updates (patches and service packs) are regularly available to update your installation. The program downloads and installs these service packs automatically.

Provided you have administrative rights to your computer (note: under VISTA and Windows 7, you need to explicitly run ATLAS.ti as administrator **in addition** to being logged in with full administrator rights in Windows), ATLAS.ti checks for new service packs upon start up (this requires an Internet connection). If a new service pack is found, you will be informed and asked to install it.

To run the software as administrator (for VISTA and Windows 7 users)

Right click on the program icon instead of double clicking. From the context menu, select the option (that appears in the language of your Windows system) **RUN AS ADMINISTRATOR**.

A Windows message pops up that you need to confirm. Next, a message generated by ATLAS.ti pops up informing you that you run the software in administrative mode. Confirm this message as well.

Now you should have the necessary rights to install service packs (and also to create new user accounts).

Live Update Settings

You find the settings for the live update under the **HELP** menu.



Figure 93: Live update settings

You have the option to prohibit the live update for instance for settings where users do not have administrative rights to the computer. Or if internet access is not always available. Then it can become quite annoying if ATLAS.ti starts the update request, just to find out after half a minute that no Internet access is available.

You can set the proxy settings or enter an authentication if needed.

We strongly recommend that you leave automatic update checking enabled (see Help menu). By always keeping ATLAS.ti up-to-date you avoid problems and benefit from ongoing continuous development of new tools and features. Also, in case you need to request assistance with a technical problem, our support team may not be able to assist you as quickly if your installation is severely out-of-date

Updating regularly is beneficial on all levels, so the adage “never change a running system” we sometimes hear is--at least as far as ATLAS.ti is concerned--a misguided superstition that will hamper you more than anything. If it wasn't for the many (free) service packs/updates we publish for each program generation, users would still not be able to perform a great many tasks that they hence have come to consider essential for their work, such as survey processing, XML stylesheets, smooth PDF, and many more. All of these were introduced in free service packs!

Glossary

Authorship

Authorship is essentially "ownership." Any item created while a user is logged in will be tagged with the name designated for that user. By using filters, it is possible to compare the work of different authors in the same project. Some division of labor strategies will prevent tracing all work done by each person.

Authorship can be changed globally or on an object by object basis.

Auto Coding Tool

If the text itself contains important key words, the Auto Coding Tool scans the text and automatically assigns a pre-selected code to matching text passages. If so desired, the process can be controlled by manual confirmation of each action.

Backup

Use the copy bundle function to backup your entire project: Tools / Copy Bundle / Create Bundle. The copy bundle file is a compressed version of your entire project and saved as one file with the extension acb (Atlas Copy Bundle). If needed you can unpack the bundle to restore your project: Tools / Copy Bundle / Install Bundle.

Codes

Codes are used as classification devices at different levels of abstraction in order to create sets of related information units for the purpose of comparison.

Coding Analyzer

The Coding Analyzer is helpful after merging HUs. It tests for redundant codes, i.e., codes used more than once for data segments that overlap or are embedded in one another.

Comments

Everything can be commented in ATLAS.ti!

Comments are not "first class objects" themselves. They do not have a name, they do not have their own list window, nor do they have any property other

than the text they contain. However, they are an important attribute of the objects that they attached to.

Writing is one of the main activities when working with ATLAS.ti. Although the program can't tell you what to write, it does support you in attaching your writings to the most appropriate location.

All objects have a "slot" that can be filled with a comment. The first comment you write is typically a comment for the HU, which appears in the HU browser and in output created with the HTML and XML generator. But even links and relations can be commented.

Cooccurrence Explorer

The Cooccurrence Explorer is more exploratory than the Query Tool. Rather than determining the codes yourself, you can ask ATLAS.ti which codes happen to cooccur in the margin area. The output can be viewed in form or a tree view or a table view. The table view provides frequency of cooccurrence and a correlation coefficient if appropriate. At the same time, you can access the data behind the numbers.

Copy Bundle

The Copy Bundle function serves a dual purpose: Portability (to migrate a project to another location), and data security (a powerful backup and restore device).

You should exclusively use Copy Bundle to port your projects between computers. To preserve the consistency of a project in regard to referenced files, refrain from copying projects manually using Windows file procedures. ALWAYS use Copy Bundle instead!

By inspecting the HU, it finds and collects all files that make up the project, the data files used as PDs, and all associated auxiliary files. It checks the accessibility of the data sources and provides feedback in problematic situations. From all the project files it compiles a single compressed file which you can then easily safely store or transfer to another computer. On the target computer, "installing" a bundle distributes the HU, the data source files, and all associated files to appropriate location(s).

Families

Families are a way to form clusters of PDs, codes, and memos for easier handling of groups of codes, memos, and PDs. Primary Document families can be regarded as attributes or variables.

For more detail, see the chapter "Family Life" in the full manual.

Families can be combined using logical operators similar to codes and Super Codes.

Family Manager

Codes, memos, and PDs can be grouped within "families". The Family Manager is the tool with which you create, modify, and edit them.

Hermeneutic Unit

The Hermeneutic Unit (HU), provides the data structure for each project in ATLAS.ti.

Everything that is relevant to a particular project (e.g., a research topic) is part of the HU and resides in the electronic environment! For instance, the Primary Documents representing the data sources, the quotations, the codes, the conceptual linkages (families, networks), and the memos, etc., are all part of one HU.

The lowest level of an HU contains the Primary Documents, followed closely by the "quotations" as selections of the Primary Documents. On the next level, codes refer to quotations. Memos - you meet them everywhere.

Hermeneutic Unit Editor

The HU Editor is the main window and usually the first thing you see after starting the system. It lets you manage, view, and annotate primary documents (PDs), which are typically the starting point of your research (see "Main Workspace: The HU Editor" in the full manual).

Hermeneutic Unit Merger

This tool merges different HUs. A variety of options to control the merge strategy are offered

[See chapter "Merging Hermeneutic Units" in the full manual.](#)

HTML Generator

Publishing online or just creating a printout from a project is available with the HTML generator. The results can be viewed platform independent with any Web browser.

Link Managers

The Link Managers provide an overview of all code-code links and of all quotation-quotation links you have created.

Margin Area

To the right hand side of the PD area is the margin area. Bars are used to indicate quotations. Attached codes, memos, and hyperlinks are displayed next to the brackets.

The margin area is fully interactive: The displayed objects are sensitive to mouse clicks and have their own context menus. In addition, a variety of drag-and-drop options are possible.

A general context menu can be opened inside the margin area by moving the mouse pointer onto the background between the objects. It allows you to set display properties of the objects.

Memos

Memos capture your thoughts regarding the text and are an important device for creating theory. A "memo" is similar to a code, but usually contains longer passages of text.

A memo may "stand alone" or it may refer to quotations, codes, and other memos. They can be grouped according to types (method, theoretical, descriptive, etc.), which is helpful in organizing and sorting them. Memos may also be included as the objects of analysis by assigning them as PDs.

Network Editor

The Network Editor displays and offers all editing capability to construct and refine semantic networks. In addition, it allows the visual creation and traversal of hypertext structures.

Network Views

Network Views are a bit more sophisticated than families. They allow you to conceptualize the structure by connecting sets of similar elements together in a visual diagram. With the aid of Network Views you can express relationships between codes, quotations, and memos. PDs, families and even Network Views can also be "nodes" in a network view.

Network View Manager

The Network View Manager contains a list of all previously constructed and saved Network Views. It can be used to create new Network Views, to access or delete existing ones, or to write and edit comments.

Nodes, Links & Relations

A node is any object that is displayed in a Network View. You can change their look and move them around in the Network Editor.

Relations are link prototypes used to create a link between two codes or between two quotations. An example is the "... is a..." (ISA) relation, which is frequently used to link concepts of different abstraction level (e.g., DOG <isa> MAMMAL).

Object Crawler

With the Object Crawler, you can search all of the parts of your project within ATLAS.ti that contain text. Searches are not restricted to just textual PDs: codes, memos, quotations, all families, code-code links, hyper-links, and the HU can be searched. In addition, the scope of the search can be limited to certain fields.

Object Explorer

The Object Explorer displays all the elements of an HU in a strictly hierarchical manner, even if the structures are non-hierarchical, or even cyclic.

Object Managers

Each main object list (primary document, quotation, code, memo) can be displayed and managed in a separate window called Object Manager. The Managers offer a variety of additional functions and are probably the most frequently used tools besides the HU Editor.

Primary Documents

Primary Documents (PDs) represent data sources, i.e., the text, image, audio, video or geographic materials that you wish to interpret. The content of PDs is usually stored in data files on your computer. Within ATLAS.ti, a primary document is created by assigning a data file to an HU.

You can, however, also create internal text documents and assign memos as a primary documents. When using data files as sources for your PDs, then you need to make sure that access to these sources is provided. This means the source file has to remain at the referenced location and should not be renamed; otherwise the HU cannot find it. To avoid jeopardizing the integrity of your coding, data sources should never be changed outside ATLAS.ti. In case you need to make changes to your data sources, ATLAS.ti offers an edit mode.

You can assign as many documents as needed for a given HU. See "Assigning and Handling Primary Documents" in the full manual for further details.

Primary Document Families (Data Attributes)

Families in ATLAS.ti are a group of objects (see entry "Families").

Primary document families fulfill a special function as they can be regarded as quasi dichotomous variables. You can group all female interviewees into a PD

family called "female". All male interviewees into a PD family called "male". You can do the same for different professions, marital status, education levels, etc. The classification is a 0 / 1 classification. 1 means the document is part of a particular group; 0 means it is not part of the group.

Following a special syntax, you can also create PD families that can be imported or exported as variables with two or more characteristics based of an Excel table like Gender::male and Gender::female.

PD Families can be later used to restrict code based searches like: Show me all data segments coded with "attitude towards the environment" but only for females who live in London as compared to females who live in the country side. You can also use PD families as filter to reduce other type of output like a frequency count for codes across a particular group of documents.

Project Transfer

In addition to using the the Copy Bundle function as backup, you can also use it for project transfer: **TOOLS / COPY BUNDLE / CREATE BUNDLE**.

To unpack a project bundle at the target location, select: **TOOLS / COPY BUNDLE / INSTALL BUNDLE**.

Query Tool

For more complex search requests, the Query Tool is at your disposal. Here you can formulate search requests that are based on combinations of codes using one or a combination of 14 different operators (Boolean, semantic and proximity operators)

Quotations

A quotation is a segment from a PD that is interesting or important to the user. In textual documents, a quotation is an arbitrary sequence of characters ranging from a single character, a word, a sentence, or a paragraph up to the entire data file. Free quotations resemble passages "scribbled" in the margin of a book.

Usually quotations are created by the researcher. However, if repetitive words or phrases are found in the text, the Auto-Coding feature can be used to automatically segment these quotations and assign a code to them.

When a quotation is created, ATLAS.ti automatically assigns an identifier to it. This identifier is built from the index of the primary text to which it belongs and the first 30 letters (note that a different length can be set via Preferences) of the text segment, e.g., "1:21 Therefore a more efficient fil...". The identifier is displayed in list windows and printouts. For graphic, audio, and video segments, the original file name of the PD is chosen as an identifier.

Although the creation of quotations is almost always part of a broader task like coding or writing memos, "free" quotations can be created that

indicate interesting parts in the primary data for which a meaningful classification has not yet been found.

Relation Editor

When the built-in relations that are used to connect objects in Network Views are not sufficient, you can edit them or create new ones using the Relation Editor.

Super Code

A Super Code differs from a standard code: A standard code is directly linked with the quotations to which it is associated, while a Super Code is a stored query. Thus it provides an answer to a question (in the best case) that typically consists of several combined codes.

[See the chapter on the Query Tool in the full manual.](#)

Text Editor

Text editors can be opened to edit comments, to create and edit memos, and to view, format, and print results. All editors are capable of displaying and editing rich text format (RTF). They offer WordPad™-equivalent WYSIWYG convenience and editing features.

Text Search Tool

From simple string matching to sophisticated pattern match (GREP) and category search, all is available in the Text Search Tool.

Variables

See “Primary Document Families”.

Word Cruncher

The Word Cruncher counts all words in textual PDs. The count can be limited to one PD only.

To clean up the count, a stop list can be defined to exclude special symbols or words like ‘and,’ ‘or,’ ‘the,’ etc. The result can be displayed in an Excel table.

XML Converter

The XML Converter lists HUs saved in XML format and applies so-called "style sheets" (miniature programs written in XSLT) to the XML files. The user may edit the supplied style sheets or add new ones.

XML Generator

The XML generator exports all information contained in an HU in XML format. This universal, open data format allows for a wide variety of possibilities for display, processing, and even integration of your data with external applications.

User Administration

Manage the ATLAS.ti user database through the user administration tool. This is a prerequisite for collaborative work, but is also useful to individual users through personalizing the login or protecting an HU with a password.

[See "User Management" in the full manual.](#)