ATLAS.ti

USER MANUAL

ATLAS.ti Mac

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23.0.230 03.05.2023 14:40:52

Preface

ATLAS.ti User Manual

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Document version: 23.0.230 (03.05.2023 14:40:17)

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Please always update to the latest versions of ATLAS.ti when notified during application start.

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About this Manual

This manual describes the concepts and functions of ATLAS.ti.

It is not required that you read the manual sequentially from the beginning to the end. Feel free to skip sections that describe concepts you are already familiar with, jump directly to sections that describe functions you are interested in, or simply use it as a reference guide to look up information on certain key features.

For users with no prior knowledge of ATLAS.ti, we do, however, recommend that you especially read through the first part of this manual in order to become familiar with the concepts used by ATLAS.ti and to gain an overview of the available functions. These are the chapters: The VISE Principle, ATLAS.ti - The Knowledge Workbench, and Main Steps in Working with ATLAS.ti.

Further, to set up a project, we recommended that you read:

- Main Steps in Working with ATLAS.ti
- Starting ATLAS.ti
- The ATLAS.ti Interface
- Adding Documents
- Project Management

For all basic-level work like creating quotations, coding, and writing memos, consult the chapters under the main heading:

- Entity Managers
- Exploring Data
- Working With Quotations
- Coding Data
- Auto-coding Data
- Working With Comments And Memos
- Working With Groups

Advanced functions are described under:

- Working With Hyperlinks
- Querying Data
- Working With Networks

The sequence of the chapters follows the steps that are necessary to start and work on an ATLAS.ti project: First, the main concepts that ATLAS.ti utilizes are explained; next, an overview of all available tools is provided. These introductory and more theoretically-oriented parts are followed by more practically-oriented chapters providing step-by-step instructions. You will learn how to manage your data and how to set up and start a project. Once a project is set up, the basic functions such as coding, text search, auto-coding, writing memos, etc. become relevant. Conceptual-level functions such as the network editor, the Query Tool and the Co-occurrence tools build on the data-level work (at least in most cases) and are therefore described last.

The section Useful Resources offers some useful advice on how to get support and where to find further information on the software.

Video tutorial: What's New in ATLAS.it 22

How to Use this Manual

This manual is intended for:

- Those who have no prior knowledge of ATLAS.ti
- Those who have worked with a previous version.

Some general familiarity with concepts and procedures relating to the Windows operating system and computing in general (e.g., files, folders, paths) is assumed.

This is largely a technical document. You should not expect any detailed discussion of methodological aspects of qualitative research other than cursory statements from this manual.

Useful Resources for Getting Started

To those seeking in-depth instruction on methodological aspects, the ATLAS.ti Training Center offers a full complement of dedicated ATLAS.ti training events worldwide, both through online courses and face-to-face seminars in nearly all parts of the world. Visit the Training Center at https://training.atlasti.com.

ATLAS.ti Account and Licence Activation

For further information on Multi-User License Management, see our **Guide for License Holders & Administrators**.

Requesting a Trial Version

1. Go to https://my.atlasti.com/ to create an account.
2. Confirm your email address.
3. Request a trial license by clicking on Trial Desktop.

This brings you to the Cleverbridge Website.

4. Enter the required information and download the software.

If you do not want to download the software immediately, you can always do this later in your ATLAS.ti account. To do so, select My Applications.

The trial version can be used for 5 active days by one person on one computer within a period of 3 months. At the end of the test period, you can continue to use ATLAS.ti with limited functionality. If your project contains more than 10 documents, 50 quotations or 25 codes, you can no longer save any changes. Thus, ATLAS.ti then becomes a read-only version.

You can initiate the purchase of a full licence from your ATLAS.ti account. After activating the licence, and the program can be used again at full capacity. You can also continue to work on your project without any data loss.

You cannot install a trial version again on the same computer.

Activating a Licence

You need to make an online connection at least once to activate your licence. Once the account it activated, you can work offline and no further online connection is required.

Please note, if you are using a seat that is part of a multi-user licence, you will blog the seat if you are offline.

If you have purchased an individual license from the ATLAS.ti web shop, your license has been added to your account. The next step is to activate it.

Similarly, if you are a member of a team of users under a multi-user license, you have received a license key, an invitation code, or invitation link from the person who manages the license.

The ATLAS.ti License Management System allocates seats of multi-user license dynamically. This means, you are assigned the first free seat under your license. If all seats are occupied, you will be allocated the next seat that opens up.

> Log in to your ATLAS.ti account.

> Navigate to License Management (the default page) and enter either the license key, or the invite code that you were given by the license owner/license manager.

> Click **Activate License.**

> Start ATLAS.ti on your computer and click **Check For Updated License** and follow the on-screen instructions to complete a few easy steps to activate your license.

Your installation is now activated, and you can start using ATLAS.ti.

Accessing Your Account from within ATLAS.ti

> On the opening screen, click on the user avatar. If you have not added a picture yet, it will show the first two letters of your account name.

> Click on Manage Account. This takes you to the login screen. Enter your log-in information (email and password) to access your account.

Logging Out

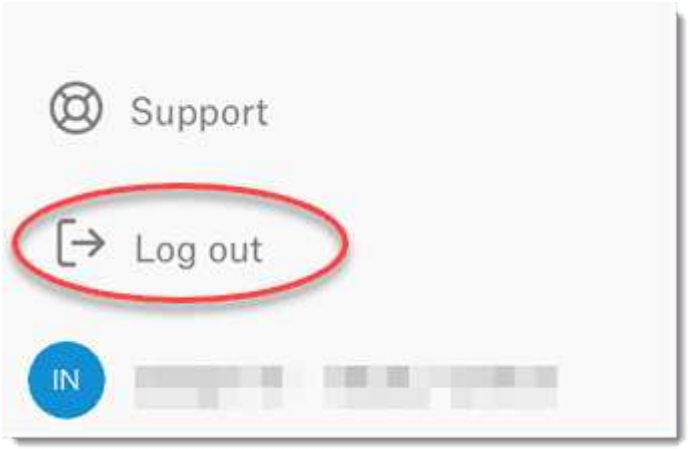
It is important to understand that the installation of ATLAS.ti is independent of the licencing of the software. You can have ATLAS.ti installed on as many computers as you want. A single-user licence gives you the right to use it on two computers, e.g. your desktop computer at the office and your laptop at home; or your Windows computer and your Mac computer; or the Cloud version and a desktop version. If you want to use ATLAS.ti on a third computer, or if you get a new computer, make sure you log out at the computer that you do no longer want to use. If you have been invited to use a multi-user license, you will have one seat for the time when using ATLAS.ti.

There are two ways how to log out to free a seat:

> Click on the user avatar in the welcome screen and click **Log Out**.
> If you forgot to log out in ATLAS.ti, you can always access your user account via a web browser:

> Go to **https://my.atlasti.com/**. Enter your email address and password to log in.

> Select the **Log Out** option at the bottom left above your avatar in your ATLAS.ti account.



Working Off-Line

When starting ATLAS.ti, it checks whether you have a valid licence. If you know that you won't have online-access for a given period, you can set your licence to **off-line** work for a specified period.

If you have a licence that does not expire, the maximum off-line period is four months. If you have a lease licence, the maximum period is dependent on the expiration date of your lease. This means, if your licence expires in 1 month, you cannot set the offline period to an additional 3 months.

After the period expired, you need to connect to the Internet again to verify your licence.

Limited Version after Licence Expiration

Once the trial period or a time limited licence expire, the program is converted into a limited version. You can open, read and review projects, but you can only save projects that do not exceed a certain limit (see below). Thus, you can still use ATLAS.ti as a read-only version.

> You cannot install a trial version again on the same computer.

Restrictions of the Limited Version

- 10 primary documents
- 50 quotations
- 25 codes
- 2 memos
- 2 network views
- auto backup is disabled

Introduction

ATLAS.ti is a powerful workbench for the qualitative analysis of larger bodies of textual, graphical, audio, and video data. It offers a variety of tools for accomplishing the tasks associated with any systematic approach to unstructured data, i.e., data that cannot be meaningfully analyzed by formal, statistical approaches. In the course of such a qualitative analysis, ATLAS.ti helps you to explore the complex phenomena hidden in your data. For coping with the inherent complexity of the tasks and the data, ATLAS.ti offers a powerful and intuitive environment that keeps you focused on the analyzed materials. It offers tools to manage, extract, compare, explore, and reassemble meaningful pieces from large amounts of data in creative, flexible, yet systematic ways.

Video Tutorial: Overview of ATLAS.ti 22 Mac.

The VISE Principle

The main principles of the ATLAS.ti philosophy are best encapsulated by the acronym **VISE**, which stands for

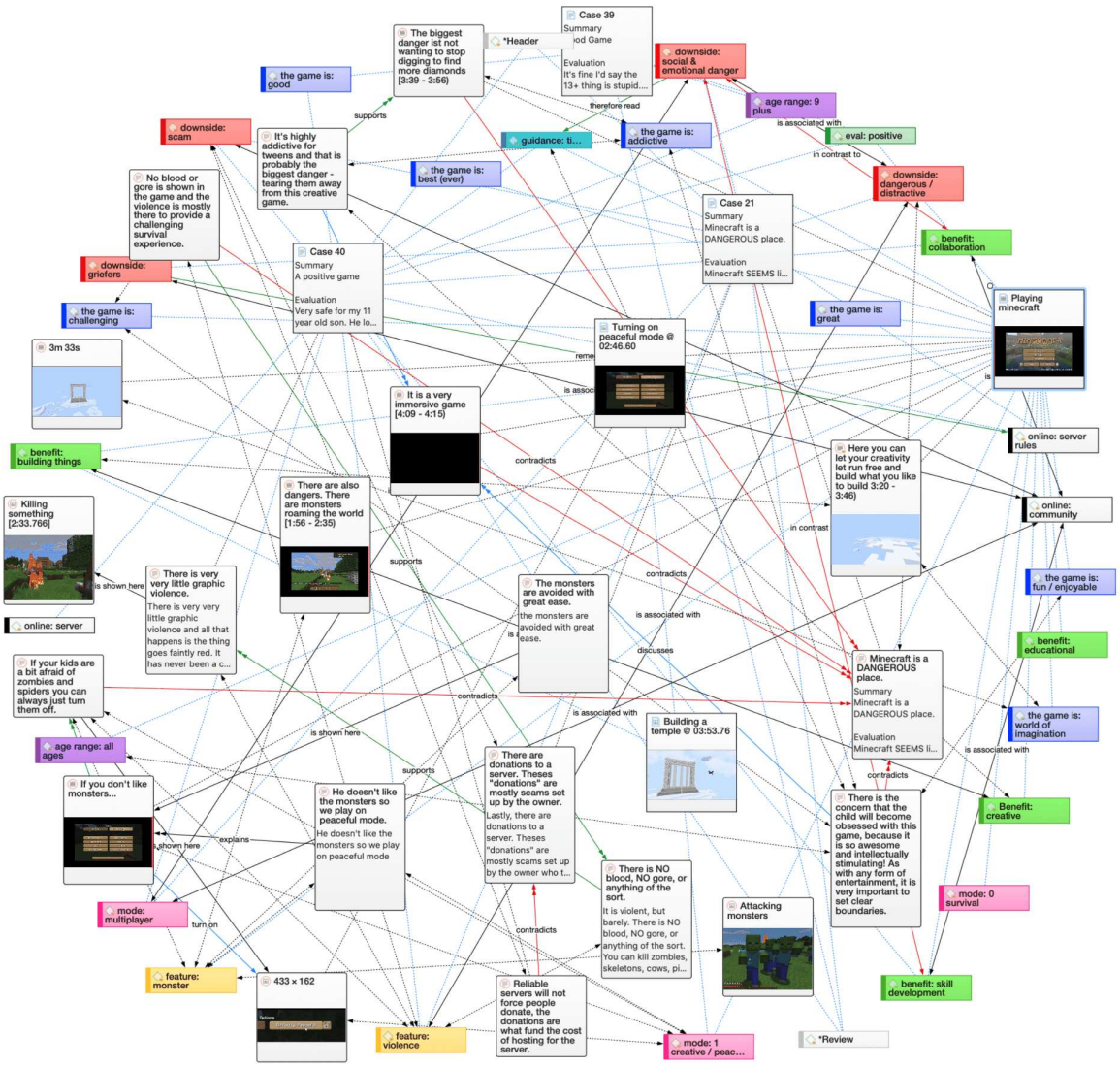
- Visualization
- Immersion
- Serendipity
- Exploration

Visualization

The visualization component of the program means directly supports the way human beings think, plan, and approach solutions in creative, yet systematic ways.

Tools are available to visualize complex properties and relations between the entities accumulated during the process of eliciting meaning and structure from the analyzed data.

The process is designed to keep the necessary operations close to the data to which they are applied. The visual approach of the interface keeps you focused on the data, and quite often the functions you need are just a few mouse clicks away.



Immersion

Another fundamental design aspect of the software is to offer tools that allow you to become fully immersed in your data. No matter where you are in the software, you always have access to the source data. Reading and re-reading your data, viewing them in different ways and writing down your thoughts and ideas while you are doing it, are important aspects of the analytical process. And, it is through this engagement with the data that you develop creative insights.

Serendipity

Webster's Dictionary defines serendipity as **a seeming gift for making fortunate discoveries accidentally**. Other meanings are: Fortunate accidents, lucky discoveries. In the context of information systems, one should add: Finding something without having actually searched for it.

The term *serendipity* can be equated with an intuitive approach to data. A typical operation that relies on the serendipity effect is *browsing*. This information-seeking method is a genuinely human activity: When you spend a day in the local library (or on the World Wide Web), you often start with searching for particular books (or keywords). But after a short while, you typically find yourself

increasingly engaged in browsing through books that were not exactly what you originally had in mind - but that lead to interesting discoveries.

Examples of tools and procedures ATLAS.ti offers for exploiting the concept of serendipity are the Search & Code Tools, the Word Clouds and Lists, the Quotation Reader, the interactive margin area, or the hypertext functionality.

Exploration

Exploration is closely related to the above principles. Through an exploratory, yet systematic approach to your data (as opposed to a mere *bureaucratic* handling), it is assumed that especially constructive activities like theory building will be of great benefit. The entire program's concept, including the process of getting acquainted with its particular idiosyncrasies, is particularly conducive to an exploratory, discovery-oriented approach.

Areas of Application

ATLAS.ti serves as a powerful utility for qualitative analysis of textual, graphical, audio, and video data. The content of these materials is in no way limited to any one particular field of scientific or scholarly investigation.

Its emphasis is on qualitative, rather than quantitative, analysis, i.e., determining the elements that comprise the primary data material and interpreting their meaning. A related term would be "knowledge management," which emphasizes the transformation of data into useful knowledge.

ATLAS.ti can be of great help in any field where this kind of *soft data* analysis is carried out. While ATLAS.ti was originally designed with the social scientist in mind, it is now being put to use in areas that we had not really anticipated. Such areas include psychology, literature, medicine, software engineering, user experience research, quality control, criminology, administration, text linguistics, stylistics, knowledge elicitation, history, geography, theology, and law, to name just some of the more prominent.

Emerging daily are numerous new fields that can also take full advantage of the program's facilities for working with graphical, audio, and video data. A few examples:

- Anthropology: Micro-gestures, mimics, maps, geographical locations, observations, field notes
- Architecture: Annotated floor plans
- Art / Art History: Detailed interpretative descriptions of paintings or educational explanations of style
- Business Administration: Analysis of interviews, reports, web pages
- Criminology: Analysis of letters, fingerprints, photographs, surveillance data
- Geography and Cultural Geography: Analysis of maps, locations
- Graphology: Micro comments to handwriting features.
- Industrial Quality Assurance: Analyzing video-taped user-system interaction
- Medicine and health care practice: Analysis of X-ray images, CAT scans, microscope samples, video data of patient care, training of health personal using video data
- Media Studies: Analysis of films, TV shows, online communities
- Tourism: Maps, locations, visitor reviews

Many more applications from a host of academic and professional fields are the reality. The fundamental design objective in creating ATLAS.ti was to develop a tool that effectively supports the human interpreter, particularly in handling relatively large amounts of research material, notes, and associated theories.

Although ATLAS.ti facilitates many of the activities involved in qualitative data analysis and interpretation (particularly selecting, tagging data, and annotating), its purpose is not to fully automate these processes. Automatic interpretation of text cannot succeed in grasping the complexity, lack of explicitness, or *contextuality* of scientific or everyday knowledge. In fact, ATLAS.ti was designed to be more than a single tool - think of it as a professional workbench that provides a broad selection of effective tools for a variety of problems and tasks.

ATLAS.ti - The Knowledge Workbench

The image of ATLAS.ti as a **knowledge workbench** is more than just a lively analogy. Analytical work involves tangible elements: research material requires piecework, assembly, reworking, complex layouts, and some special tools. A well-stocked workbench provides you with the necessary instruments to thoroughly analyze and evaluate, search and query your data, to capture, visualize and share your findings.

Some Basic Terms

To understand how ATLAS.ti handles data, visualize your entire project as an intelligent **container** that keeps track of all your data. This container is your **ATLAS.ti project**.

The project keeps track of the paths to your source data and stores the codes, code groups, networks, etc. that you develop during your work. Your **source data** files are copied and stored in a repository. The standard option is for ATLAS.ti to manage the documents for you in its internal database. If you work with larger audio or video files, they can be linked to your project to preserve disk space. All files that you assign to the project (except those externally linked) are **copied**, i.e., a duplicate is made for ATLAS.ti's exclusive use. Your original files remain intact and untouched in their original location.

The project lives on your computer, to ensure both data privacy as well as offline availability. Additionally, you can choose to upload your projects to the ATLAS.ti project cloud right from within ATLAS.ti. To share them with colleagues, access them from multiple computers, or simply as a backup. See Project Cloud for details.

Your source data can consist of **text documents** (such as interview or focus group transcripts, reports, observational notes); **images** (photos, screenshots, diagrams),**audio recordings** (interviews, broadcasts, music), **video clips** (audiovisual material), **PDF files** (papers, brochures, reports, articles or book chapters for a literature review), **geo data** (locative data using Open Street Map), and **social network comments**.

Once your various documents are added or linked to an ATLAS.ti project, your real work can begin. Most commonly, early project stages involve **coding** different data sources.

Selecting interesting segments in your data and coding them is the basic activity you engage in when using ATLAS.ti, and it is the basis of everything else you will do. In practical terms, coding refers to the process of assigning **codes** to segments of information that are of interest to your research objectives. We have modeled this function to correspond with the time-honored practice of **marking** (underlining or highlighting) and **annotating** text passages in a book or other documents.

In its central conceptual underpinnings, ATLAS.ti has drawn deliberately from what might be called the **paper and pencil paradigm**. The user interface is designed accordingly, and many of its processes are based on - and thus can be better understood by - this analogy.

Because of this highly intuitive design principle, you will quickly come to appreciate the **margin area** as one of your most central and preferred work space - even though ATLAS.ti almost always offers a variety of ways to accomplish any given task.

General Steps when Working with ATLAS.ti

The following sequence of steps is, of course, 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. See Creating a New Project.
- Next, add documents, text, graphic, audio and video files, or geo documents to your ATLAS.ti project. See Adding Documents.
- Organize your documents. See Working With Groups.
- Read and select text passages or identify areas in an image or select segments on the timeline of an audio or video file that are of further interest, assign keywords (codes), and write comments and memos that contain your thinking about the data. Build a coding system. See Working With Comments And Memos and Coding Data - Basic Concepts.
- Compare data segments based on the codes you have assigned; possibly add more data files to the project. See for example Retrieving Coded Data.
- Query the data based on your research questions utilizing the different tools ATLAS.ti provides. The keywords 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, applying global filters, the Code Co-occurrence Tools (tree explorer and table), the Code Document Table, data export for further statistical analysis. See Data Analysis and Data Export For Further Statistical Analysis.
- Conceptualize your data further by building networks from the codes and other entities you have created. These networks, together with your codes and memos, form the framework for emerging theory. See Working With Networks.
- 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. See Working With Comments And Memos and Exporting Networks.

For additional reading about working with ATLAS.ti, see The ATLAS.ti Research Blog and The ATLAS.ti conference proceedings.

Main Concepts and Features

You need to be familiar with the concepts of documents, quotations, codes, and memos as the overall foundation when working with ATLAS.ti, complemented by a variety of special aspects such as groups, networks, and the analytical tools.

Everything that is relevant for your analysis will be part of your ATLAS.ti project residing in the digital domain. For instance, the data you are analyzing, the quotations as your unit of analysis, the codes, the conceptual linkages, comments and memos, are all part of it. One obvious advantage of this container concept is that as user you only have to deal with and think of one entity. Activating the ATLAS.ti project is the straightforward selection of a single file; all associated material is then activated automatically.

The most basic level of an ATLAS.ti project consists of the documents you are analyzing, followed closely by the quotations (= selections from these document). On the next level, codes refer to quotations. And comments and memos - you meet them everywhere. Your ATLAS.ti project 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.

You can access information about each of these tools using the links below:

- Documents
- Document Groups
- Quotations
- Codes
- Memos
- Comments
- Groups
- Networks
- Data Exploration
- Analysis
- Team Tools
- Report
- Data Export

Documents and Document Groups

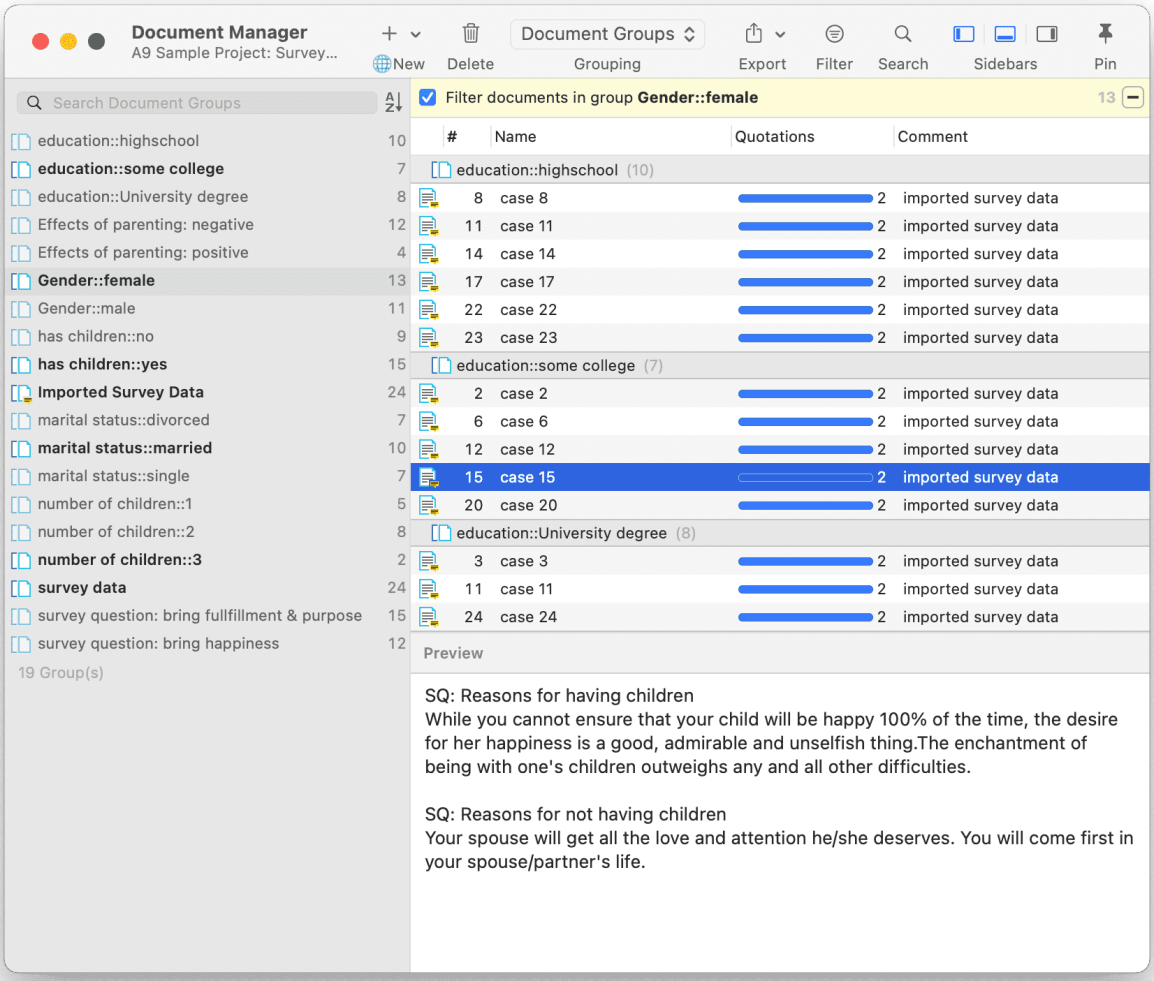
Video tutorial: Organizing project data – Creating document groups
Documents represent the data you have added to an ATLAS.ti project. These can be text, image, audio, video or geographic materials that you wish to analyze. Working with text data includes importing survey data, importing data from a reference manager for a literature review, using interview or focus group data, reports in text or PDF formats, observational notes, etc. For more information, see Supported file formats.

Document groups fulfill a special function as they can be regarded as quasi dichotomous variables. You can group all female interviewees into a document group named "gender::female," all male interviewees into a group named "gender::male." You can do the same for different professions, marital status, education levels, etc. See Working with Groups for further information

Document groups can later in the analysis be 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 countryside."

You can also use document groups as a filter, for example to reduce other types of output, like a frequency count for codes across a particular group of documents.

This is explained in more detail in the section Code Document Table.



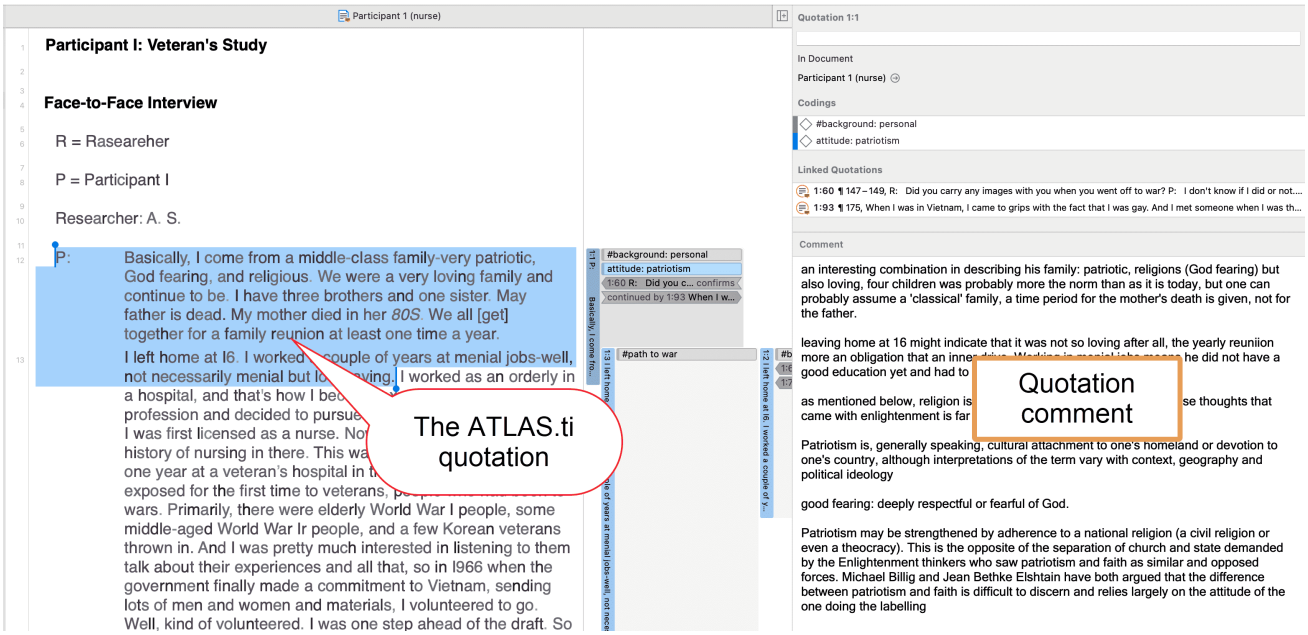
Quotations

Video tutorial: Working with Quotations
A quotation is a segment from a document that you consider to be interesting or important.

Usually, quotations are created manually by the researcher. However, for repetitive words, phrases or structural information like speaker units, the Search & Code tools can be used. With any of the tools you can automatically segment the data and assigns a code to them.

Although the creation of quotations is almost always part of a broader task like coding or writing memos, quotations can also be created without coding. They are called "free" quotations.

If you for instance are using discourse analysis or an interpretive approach to analysis, or if you work with video data, free quotations can be your starting point for analysis, rather than to code the data right away. See Working with Quotations, and the ATLAS.ti Quotation Level.



Codes

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

> *Coding means that we attach labels to data segments that depict what each segment is about. Through coding, we raise analytic questions about our data from [...]. Coding distills data, sorts them, and gives us an analytic handle for making comparisons with other segments of data.*
> Charmaz (2014:4)

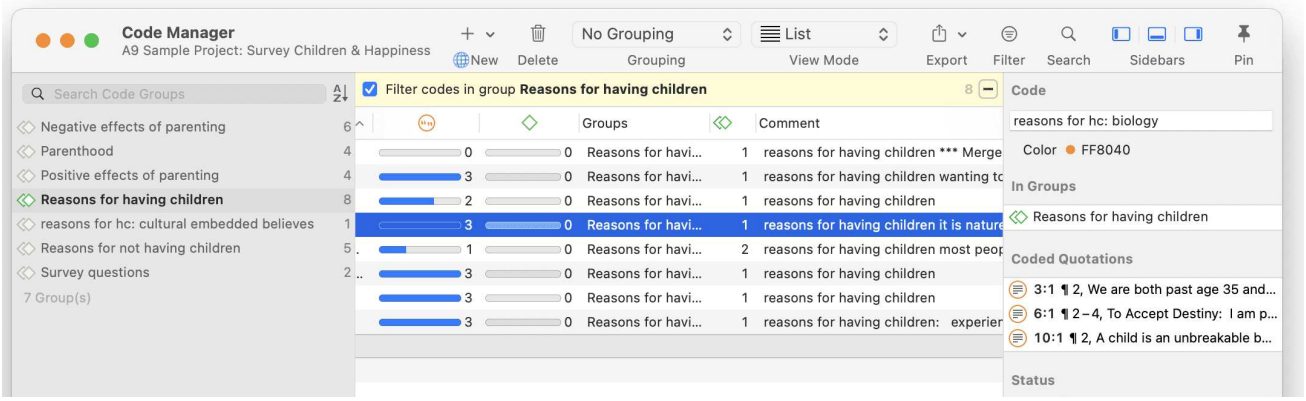
> *Coding is the strategy that moves data from diffuse and messy text to organized ideas about what is going on.*
> (Richards and Morse, 2013:167)

From a Methodological Perspective

- Codes capture meaning in the data.
- Codes 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.

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.

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



From a Technical Perspective

Codes are short pieces of text referencing other pieces of text, graphical, audio, or video data. Their purpose is to classify data units.

In the realm of information retrieval systems, the terms "tag", "keyword", or "tagging" are often used for "code" or "coding."

Further information can be found in the sections Coding Data and Working With Codes.

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Charmaz, Kathy (2014). Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis. London: Sage.

Richards, Lyn and Janice M. Morse (2013, 3ed). Readme first: for a user's guide to Qualitative Methods. Los Angeles: Sage.

Memos

Video tutorial: Using memos in the early stages of a project
Writing is an important part of analysis in qualitative research. When using software, it is easy to fall into the code trap. Always remember that coding the data is only a means to an end, to think, retrieve, and query data (Corbin and Strauss, 2015; Richards, 2009; Richards and Morse, 2013).

Memos are a bit more than just a short scribbled note in the margin area:

> *Memos [...] are working and living documents. When an analyst sits down to write a memo or do a diagram, a certain degree of analysis occurs. The very act of writing memos and doing diagrams forces the analyst to think about the data. And it is in thinking that analysis occurs* (Corbin and Strauss, 2008: 118).

> *Writing is thinking. It is natural to believe that you need to be clear in your mind what you are trying to express first before you can write it down. However, most of the time, the opposite is true. You may think you have a clear idea, but it is only when you write it down that you can be certain that you do (or sadly, sometimes, that you do not)* (Gibbs, 2005).

Memos thus represent analytical work in progress, and you can later use them as building blocks for your research report (see Friese, 2019). It is probably not by accident that Juliet Corbin includes a lot about memo writing in the third edition of Basics of Qualitative Research; she wants to show readers how it can be done. In a talk at the CAQD 2008 Conference about the book, she linked the poor quality of many of today's qualitative research projects to a failure to use memos. Along the same lines, Birks et al. (2008) devotes an entire journal article to memo writing, criticizing the limited exploration of its value in most qualitative methodologies.

Freeman (2017) states that it is one of the challenges facing novice researchers to understand that writing is inseparable from analysis. We would like to encourage you do it: write a lot already while you code and later when you query the data. If you do it, you will find out why it is useful - but you've got to do it. As Freeman put it: The challenge for novice researchers is: "Needing to do analysis to understand analysis" (2017:3).

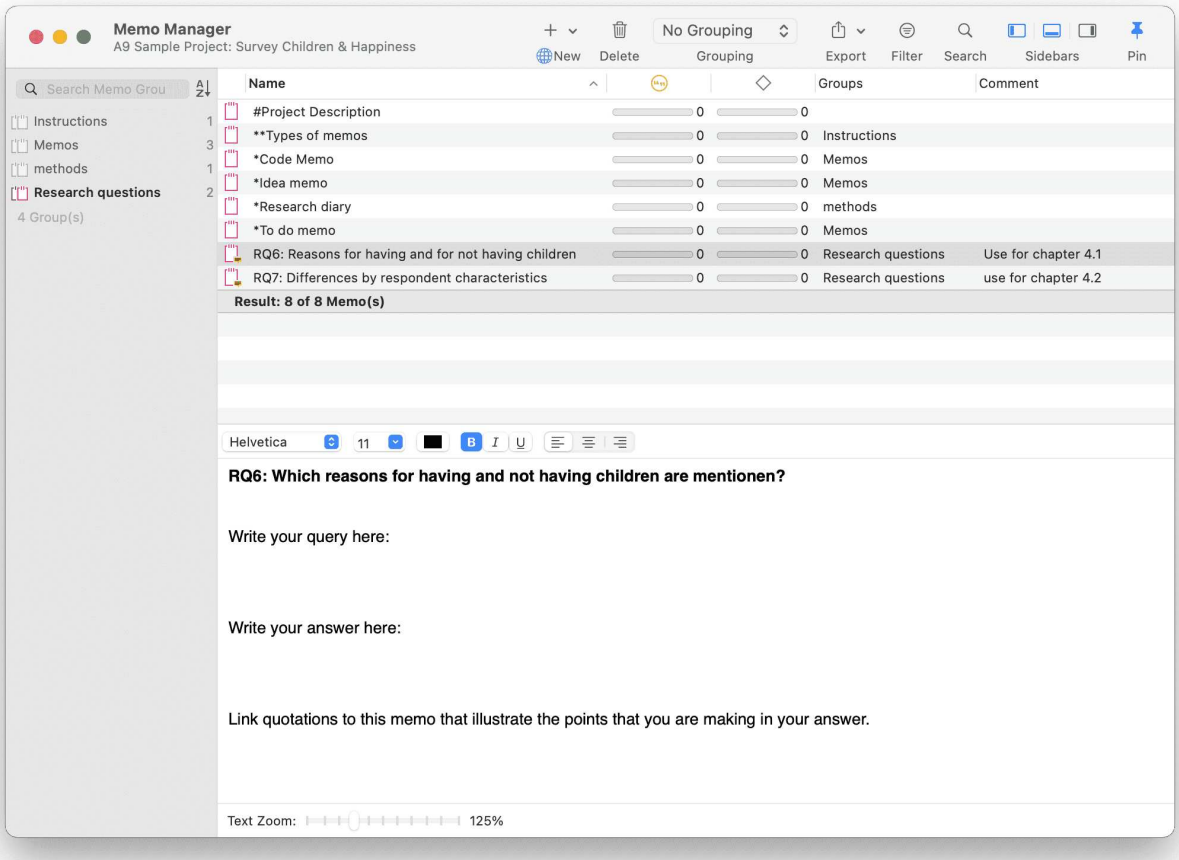
When you need more input regarding how to write memos see, for example, the third edition of Basics of Qualitative Research by Corbin and Strauss (2008/2014), Wolcott (2009), Charmaz (2014) or Friese (2019).

In technical terms,

- A memo in ATLAS.ti may *stand alone*, or it may be linked to quotations, codes, and other memos.
- Memos can be sorted by type (method, theoretical, descriptive, etc.), which is helpful in organizing and sorting them, or by creating memo groups.

- Memos may also be included in the analysis as secondary data by converting them into a document. Then they can also be coded.

For more information, see Working with Comments and Memos.



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Birks, Melanie; Chapman, Ysanne and Francis, Karin (2008). Memoing in qualitative research: probing data and processes, Journal of Research in Nursing, 13, 68–75.

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Corbin, Juliet and Strauss, Anselm (2008/2015). Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory (3rd and 4th ed.). Thousand Oaks, CA: Sage.

Freeman, Melissa (2017). Modes of Thinking for Qualitative Data Analysis. NY: Routledge.

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Richards, Lyn (2009). Handling qualitative data: a practical guide (2. ed), London: Sage.

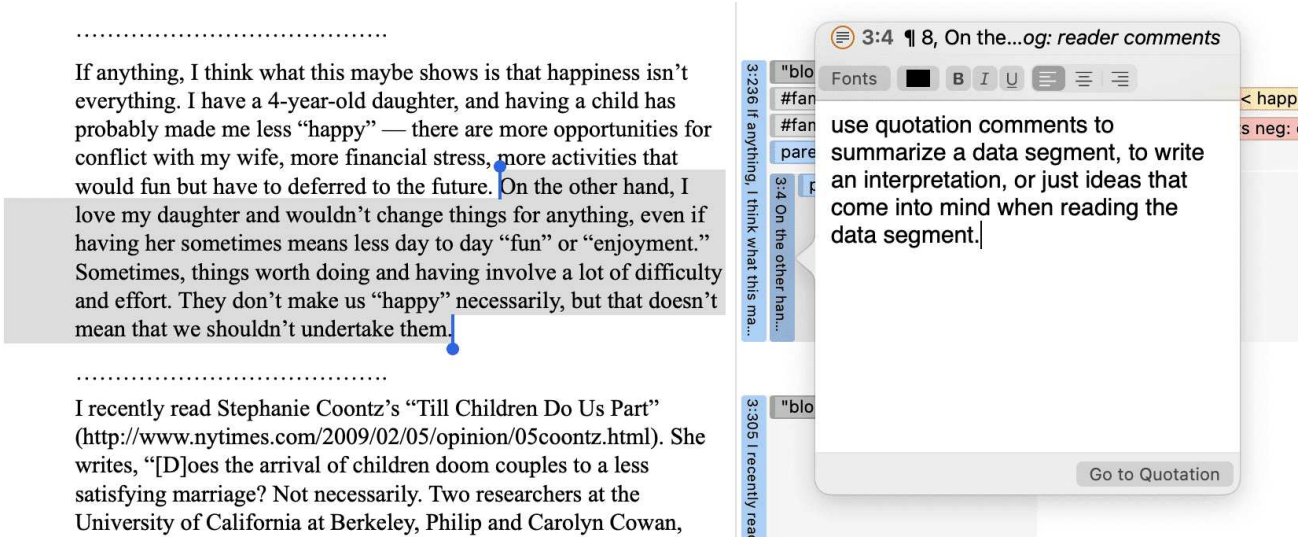
Wolcott, Harry E. (2009). Writing Up Qualitative Research. London: Sage.

Comments

You can write comments for all entities in ATLAS.ti. Comments - different from memos - are always directly connected to the entity you write them for. Memos are independent stand-alone entities that have a name and a type. Memos can be grouped and can also have comments on their own.

Writing comments is similar to scribbling notes in the margin of a paper, or attaching sticky notes to things. Comments can be written for documents, quotations, codes, memos, networks, all types of groups, and for relations.

See Working with Memos and Comments for further detail.



Groups

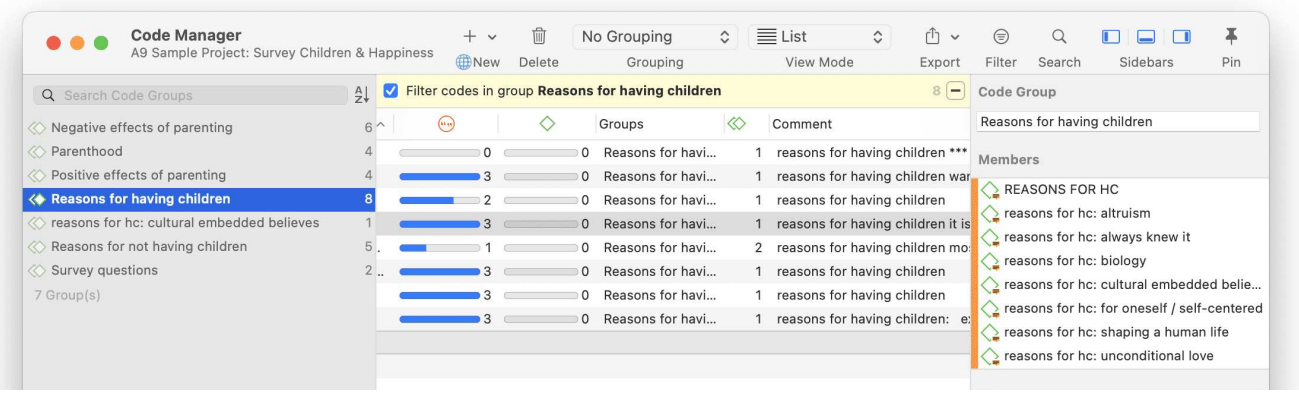
Groups in ATLAS.ti are filter devices.

Document groups can be regarded as attributes or variables. It is possible to combine them using logical operators like AND and OR, for instance to retrieve and analyze data from female respondents living in NYC. This would an AND combination of two document groups.

Code groups serve as a filter for codes. They can for instance be used to filter all codes that need to be aggregated if you have been coding very detailed and in the process of generated too many codes.

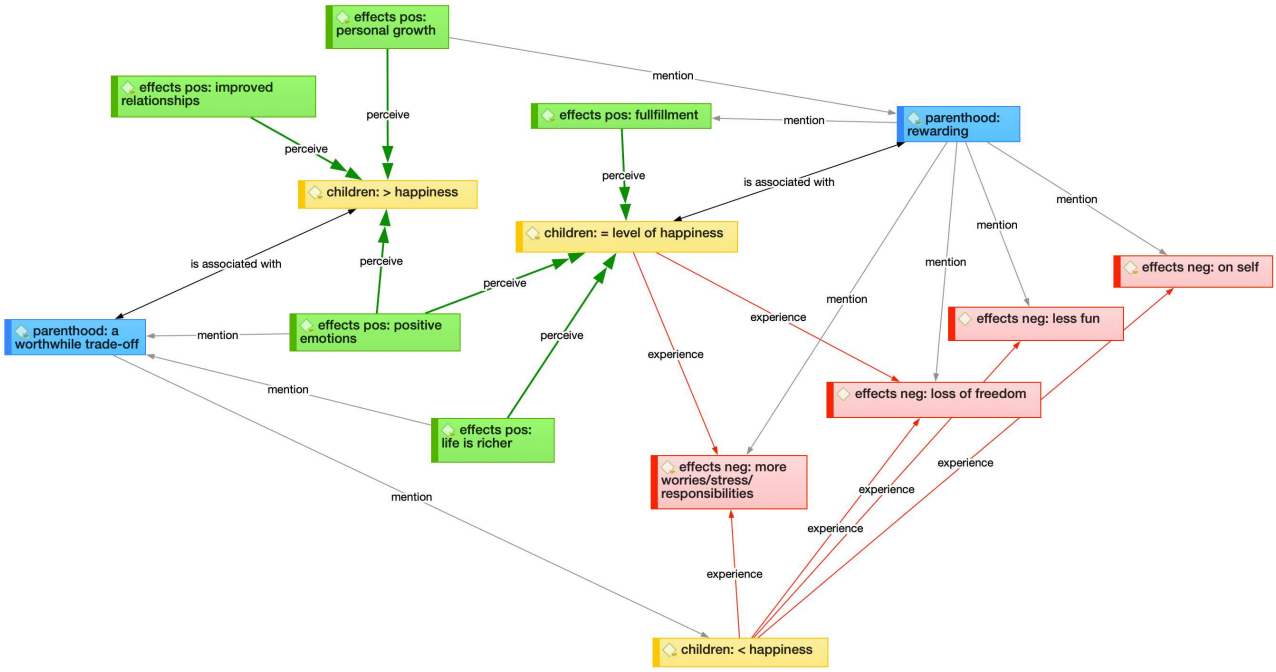
> Code groups are not a kind of higher order code. It is NOT recommended using them as categories. For further information see Building a Code System.

For more information on groups, see Working with Group.



Networks

Networks allow you to conceptualize your data by connecting sets of related elements together in a visual diagram. With the aid of networks you can express relationships between codes and quotations; and you can link other entities like and memos, documents and groups. Also networks themselves can be "nodes" in a network.



Nodes, Links and Relations

A **node** is any entity that is displayed in a network . You can change their look and move them around in the network editor.

A **link** is a line that allows you to connect two entities.

Relations allow you to name links between two codes or between two quotations.

Network Manager

The Network Manager contains a list of all saved networks that you have crated. It can be used to access a network, to delete existing networks, or to write and edit comments. See Network Manager.

Network Editor

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

Link Manager

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

Relation Manager

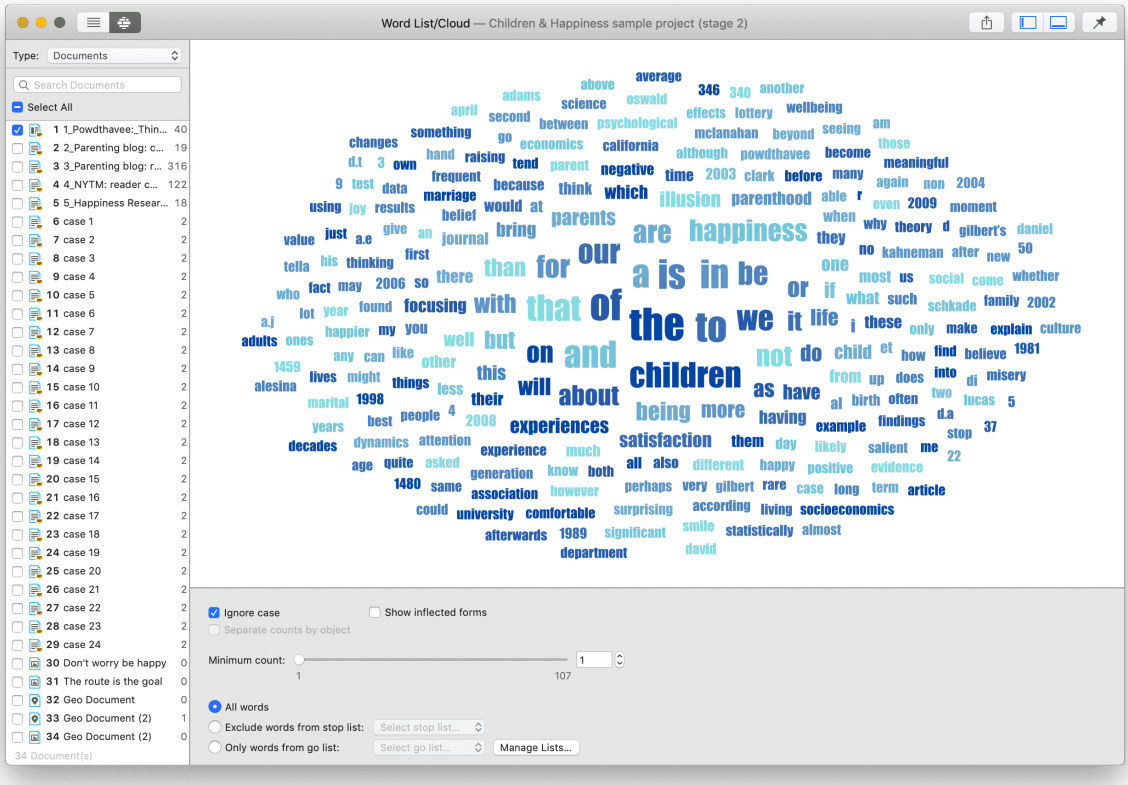
The Relation Manager allows you to modify existing relations or to create new relations. See Creating New Relations.

Find more information on the network function see Working with Networks.

Tools for Exploring Text Data

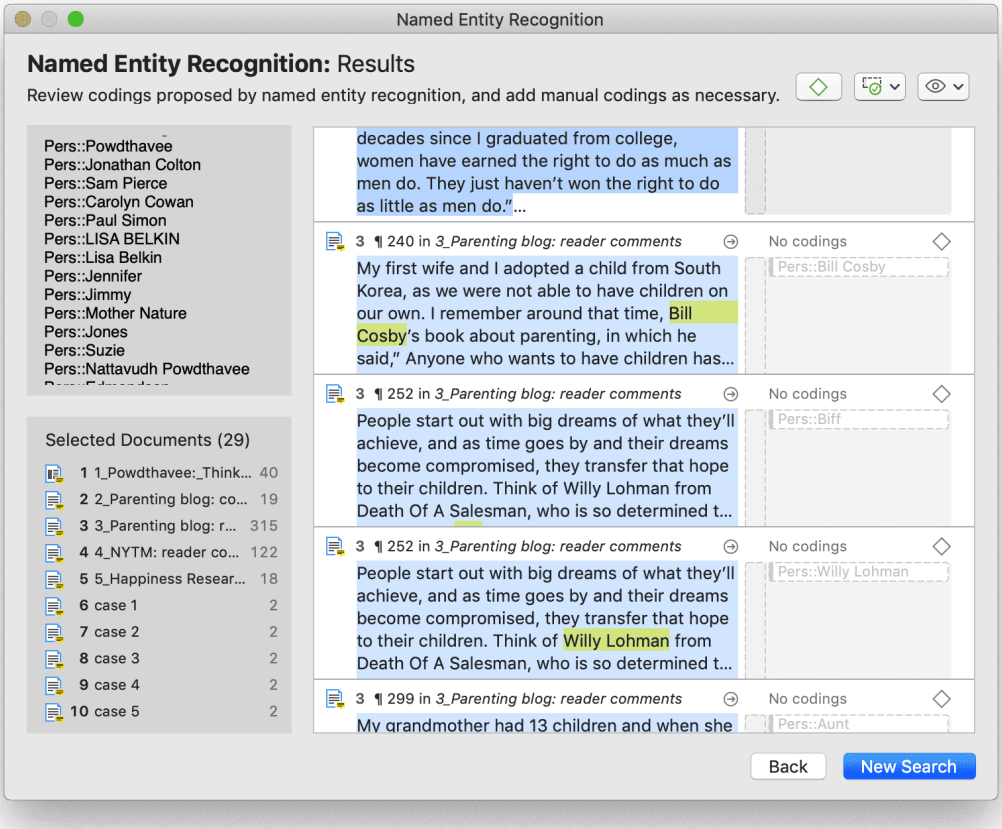
Video tutorial: Memos at project begin ATLAS.ti 22 Mac
ATLAS.ti offers a number of tools that you can use to explore your textual data:

- **Word clouds** and **word lists** for documents, quotations, and codes. See Creating Word Lists and Clouds.



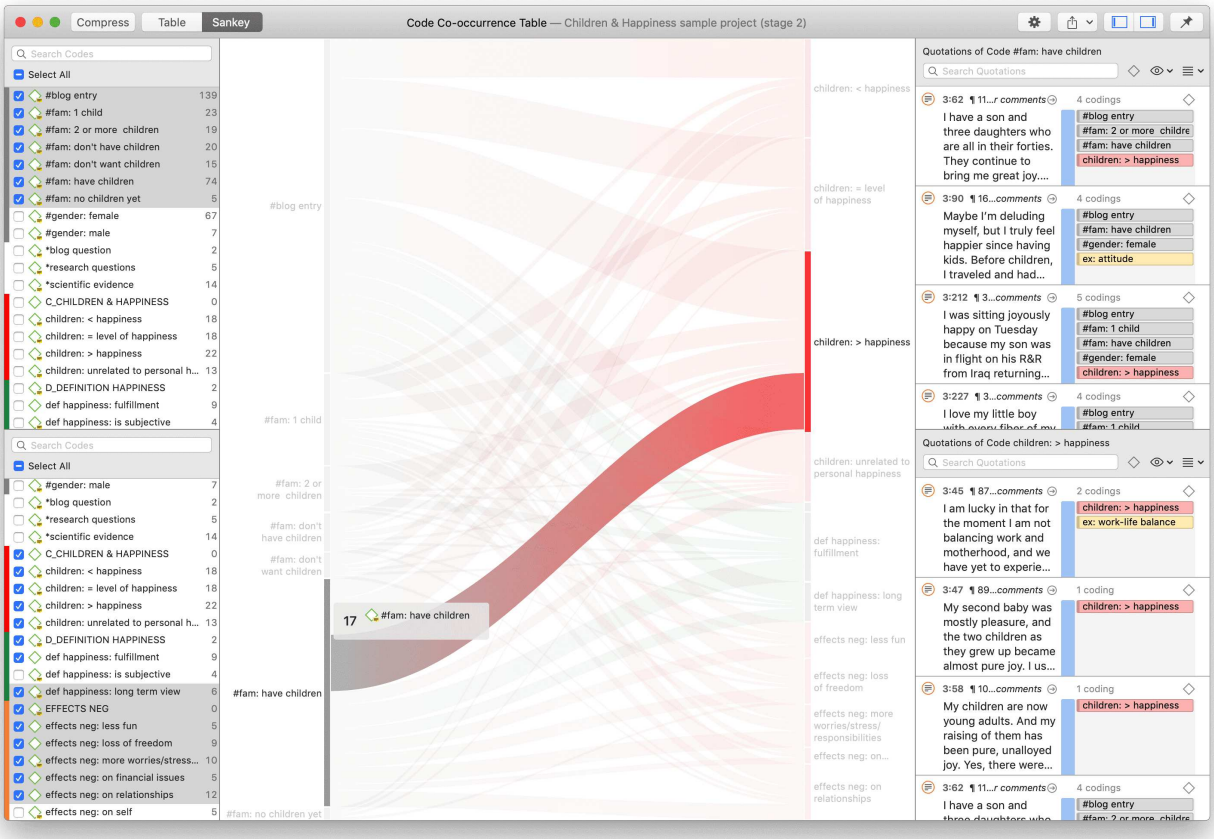
- the Search & Code Tools. These tools offer a combination of text search and auto coding:
  - **Text search**: search for a words, word fragments including synonyms. Logical combinations using AND and OR operators are also possible. See Text Search.
  - **Expert search**: the expert search allows for advances searches using regular expressions (RegEx). With RegEx you can use pattern matching to search for particular strings of characters rather than constructing multiple, literal search queries. See Expert Search.
  - **Named Entity Recognition (NER)**: seeks to locate and classify named entities in text into pre-defined categories such as persons, organizations, locations, or miscellaneous. You can review all hits and code them with the suggested categories. See Named Entity Recognition.
  - **Sentiment Analysis**: is the interpretation and classification of positive, negative and neutral statements within text data using text analysis techniques. Sentiment analysis models detect polarity within a text (e.g. a positive or negative opinion),within the whole document, paragraph, sentence, or clause. It has multiple applications. For

instance, it can be used for customer satisfaction analysis or for all forms of evaluations, e.g. also student evaluation of courses. See Sentiment Analysis.



Analysis

Video tutorial: Code Co-occurrence Tools and Analysis
ATLAS.ti contains multiple powerful, dedicated analytical tool to help to make sense of your data.



Cross-Tabulation of Codes (Code Co-occurrence)

The Co-occurrence analysis tools show where you have applied codes in an overlapping manner. Rather than determining the codes yourself, you can ask ATLAS.ti which codes overlap. The output can be viewed in form of a tree view or a table. The table provides a frequency count of the number of co-occurrences and a coefficient measuring the strength of the relation. Since a coefficient is only appropriate for some type of data, its display can be activated or deactivated. It is also possible to directly access the data of each co-occurrence. See Code Co-Occurrence Tools.

Code-Document Table

The Code Document Table counts the frequency of codes across documents. Aggregated counts based on code and document groups are also available. Optionally, the table cells can also contain the word counts for the quotations per code across documents or document group. The table can be exported to Excel. See Code Document Table.

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 Query Tool.

Global Filters

Global filters are a powerful tool to analyze your data. Global filters have an effect on the entire project, and you can compare and contrast your data in all kind of different ways. Effects and connections that were hidden before can now be seen and patterns emerge. For more information, see Applying Global Filter.

Smart Codes

A Smart Code is a stored query, thus provides an answer to a question (in the best case) and typically consists of several combined codes. See Working With Smart Codes.

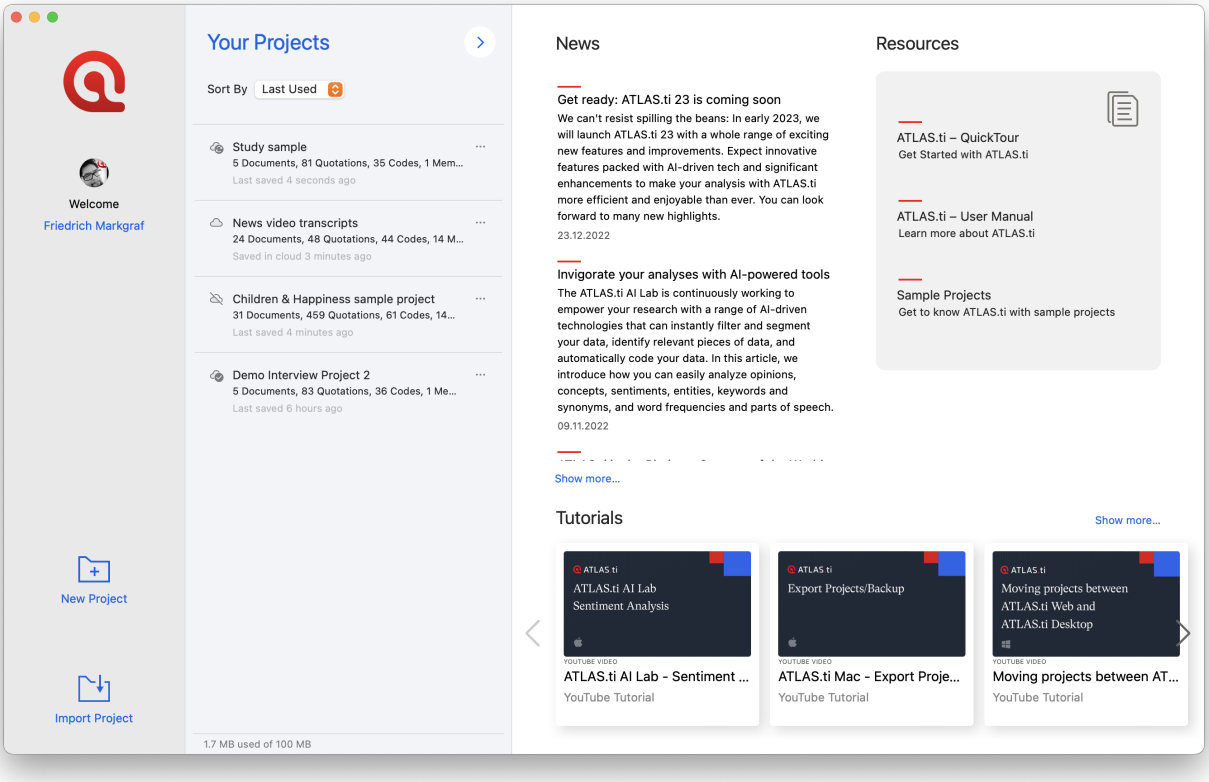
Smart Groups

Smart groups are a combination of groups. For instance, if you want to compare answers of female respondents from rural areas with female respondents from urban areas, you would create two smart groups that you either use directly in a Code-Document Table, or as filter in a code query. Smart code groups can be used if you frequently need a combination of certain codes. See Working With Smart Codes.

Project Cloud

Projects in ATLAS.ti live primarily on your computer, to ensure both data privacy as well as offline availability. In addition, you can choose to upload your projects to the ATLAS.ti project cloud right from within ATLAS.ti. To share them with colleagues, access them from multiple computers, or simply as a backup.

Please note that this feature is still in beta. This means there will be changes over the coming weeks and months, and not everything may work quite as smoothly as usual. If you have any feedback, please don't hesitate to use the built-in feedback form (accessible when you have a project open).



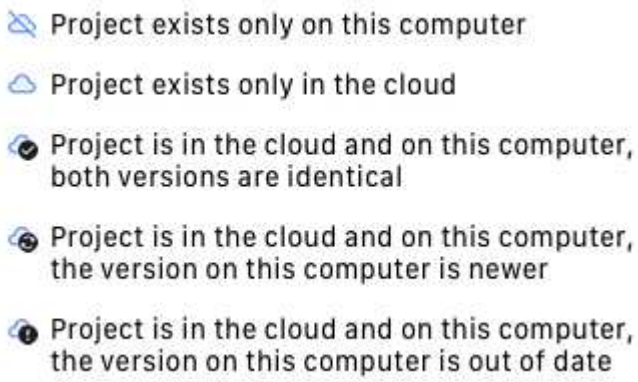
Every project you create starts on your computer. To upload it to the cloud, click the three buttons to the right of its name in the project list, and choose "Upload". You will be asked for confirmation.

ATLAS.ti will always ask for confirmation before first uploading a project to the cloud. If and when you choose to upload, your projects will be stored end-to-end encrypted on our European servers. To learn more about privacy, please see our privacy policy. And if your privacy requirements are such that you cannot use our cloud – don't worry. *Your project will stay safely on your computer until you decide otherwise.*

An ATLAS.ti project can be in one of the following states:

- **On this computer**: The project is not present in the ATLAS.ti cloud

- In the cloud: The project is in the cloud, but is not present on this computer. The project must be downloaded in order to work on it.
- Both on this computer and in the cloud: Projects that exist both in the cloud and on this computer will show one of the following states.
    - Both versions are in-sync.
    - The version on this computer is newer. After you've made changes to a project, it will be in this state. Simply click the three dots and choose "upload" to push your changes to the cloud.
    - The version in the cloud is newer. This means you have worked on this project from another computer. You will have to download the latest version before proceeding. Please note that the ATLAS.ti project cloud is not intended for simultaneous work on the same project from two computers. Always ensure you are done on one computer before continuing your work on another one.



Your project cloud storage is tied to the same ATLAS.ti account used for licensing purposes or login to ATLAS.ti Web.

During the beta period, every user gets 100 MB of free cloud storage space. This is enough for multiple projects containing hundreds of text documents each. Please be aware that other document types, especially video, may use up a lot of space. You can free up space by removing projects from the cloud or deleting large documents from a project that you have in the cloud.

How to use

In the list of projects, click on the three dots to the right of the project name to see a list of things you can do. In addition to expected options like open, rename, and so on, there will be cloud-specific commands, depending on project state.

You can upload a project that is not in the cloud, or where the version on your computer is newer. This will put the latest version of the project into the ATLAS.ti cloud.

For a project that's in the cloud, but either not present or outdated on your computer, you can download the project to have the newest version to work on available locally on your computer.

ATLAS.ti will always open the local version of a project. If you have worked on a project from another computer, ensure that you upload it there after saving. Before working on a project, ensure that you have the latest version available locally.

You can also choose to remove a project from the cloud, which will keep the local copy on your computer, or delete the project from your computer, in which case a copy will still be available in the cloud. To fully delete a project both from your computer and the cloud, use both options successively.

Sharing Projects

To share a project with colleagues, click the three dots, then choose "Invite Member...". Enter the email address of the ATLAS.ti account of the person you want to share the project with. ATLAS.ti will generate an invitation link. Copy this link, and send it to your colleague. Note that the link is personalized, and can only be redeemed by the person it was generated for.

Sharing a link to your project will create a copy of the project. That copy will be completely independent of your project, and will be private to the person you sent it to. Thus, the invitee can make any changes they desire without having to worry about interfering with your work (and vice versa). When it is time for your colleague to pass their work back to you, they can invite you to their project, which will generate a copy for you. Once you have accepted their invitation, you can view (and work on) the work they've done, and if you wish, you can merge it into your project. This way, you have maximum flexibility: When grading students' work, you probably want to see all their work in isolation, whereas on a real team project, you may want to merge colleagues' work after reviewing it.

See Team Work for details on how working in a team works with ATLAS.ti, regardless of whether you're using the ATLAS.ti cloud to share your projects or use classical project export/import functionality.

Current limitations

Being a beta feature, some limitations are to be expected. Not every interaction is as polished yet as we'd usually like, but there is also some missing functionality, and there may be bugs. This is a great time to give us some feedback, be it criticism, praise, or wishes.

Please note that in its current form, sharing projects does not mean you will be working on the same project instance together with a colleague, like you may be used to from ATLAS.ti Web. Sharing a project will create an independent copy of the project for your colleague. There is also not much in the way of team project management yet. If you have any specific workflows you would like to see more explicit support for, please let us know.

While projects in the ATLAS.ti project cloud can be worked on without any restrictions regardless of whether you're using a Windows PC or a Mac, these projects are currently not accessible from ATLAS.ti Web. Your ATLAS.ti desktop apps also will not show you your ATLAS.ti web projects.

Team Tools

Often researchers work in teams to collect and analyse data. ATLAS.ti is uniquely suited for collaborative work. A number of special tools and features support efficient work in a team. For further information see the chapter on Team Work.

For collaborative real time coding, you may want to take a look at the ATLAS.ti Web version. ATLAS.ti web projects can be imported to the desktop version to make use of the advanced analysis tools, and the network function.

Project Cloud (Beta)

Projects in ATLAS.ti live primarily on your computer, to ensure both data privacy as well as offline availability. In addition, you can choose to upload your projects to the ATLAS.ti project cloud right from within ATLAS.ti. To share them with colleagues, access them from multiple computers, or simply as a backup. See Project Cloud for details.

Project Merge

When you work in teams, you usually split the project into subprojects. In the desktop version you need to work asynchronously. The project merge tool unites all subprojects again. For more information see Merging Projects.

Clean up Redundant Codings

Redundant codings are overlapping or embedded quotations that are associated with the same code. Such codings can result from normal coding but may occur unnoticed during a merge procedure when working in teams. The Codings Analyzer finds all redundant codings and offers appropriate procedures to correct it. See Finding Redundant Codings.

Coder Icons in the Margin Area

You can switch the view in the margin area to display an icon for each user instead of the code icon. This way you can see while browsing through the data who applied which code.

Inter-Coder Agreement

ATLAS.ti allows for a qualitative and quantitative comparison of the codings of various coders. If you are interested in calculating a coefficient, ATLAS.ti offers the following: percent agreement, Holsti, and Krippendorff's family of alpha coefficients. See Inter-coder Agreement.

User Administration

ATLAS.ti automatically creates a username for each user when logging in. Each entity that is created is stamped with this username. This is a prerequisite for collaborative work, so you can see and compare who did what. You can rename existing users, create new user accounts, delete users and switch users. See User Accounts for more information.

> Please note that **synchronous** team work is not supported in the desktop version. Each team member works in his or her own project file, and these need to be merged from time to time. Use ATLAS.ti Web if you want to work with your team at the same project at the same time.

Export

Word / PDF

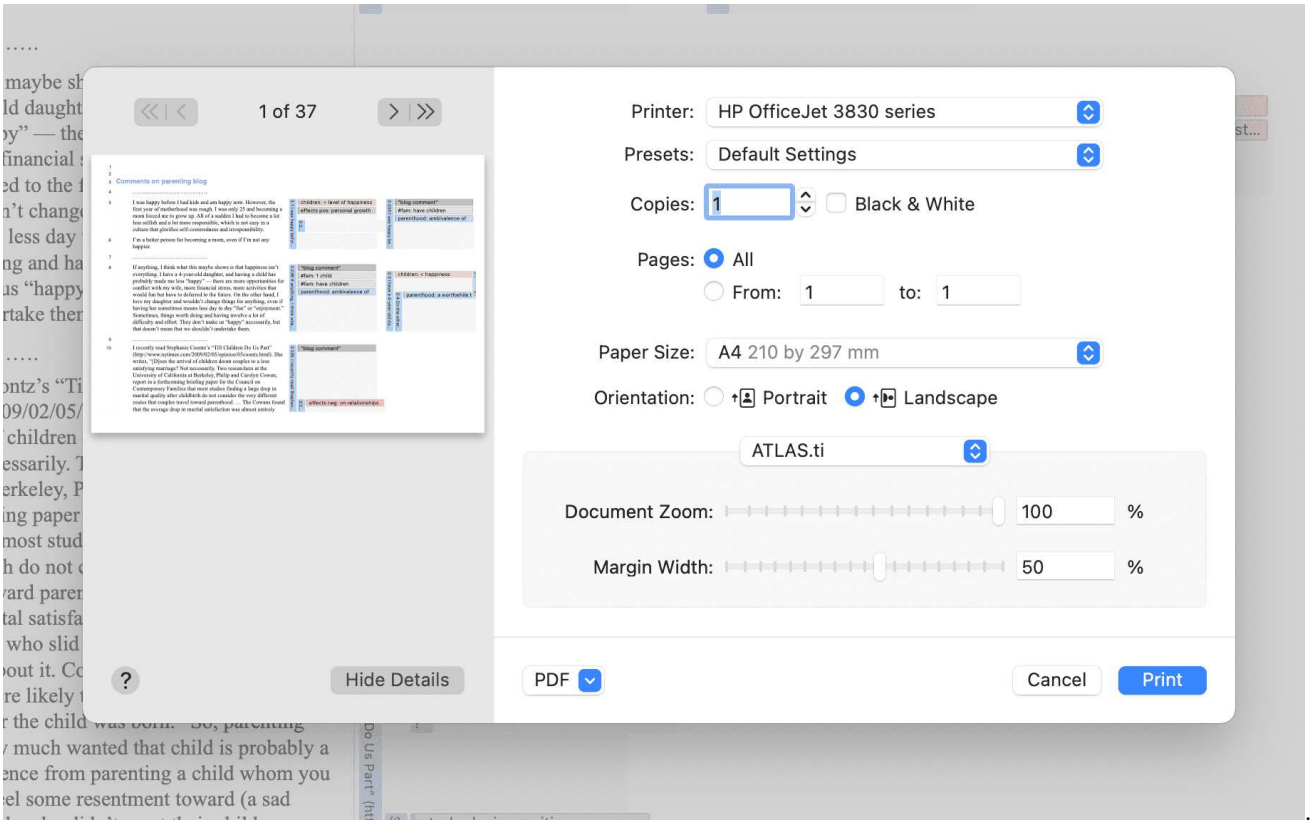
There are output options for each of the main entities in ATLAS.ti: Documents, quotations, codes, and memos and within the various tools. All reports are user configurable, and you can decide which type of content to include. See Creating Reports.

Excel Export

You find an Excel Export option in each Manager and quotation list. In addition, the results of the Code Co-occurrence Table and the Code Document Table can be exported in Excel format. See Creating Excel Reports.

Print Documents with Margin

You can print or export coded text documents in PDF format as you see them on the screen including the paragraph numbering. See Print with Margin.



QDPX Exchange Format For Projects

The QDPX format is a QDA-XML standard for exchanging projects between different CAQDAS packages. The project exchange format was launched March 18, 2019. You can see all participating programs on the following website: https://www.qdasoftware.org. See QDPX Universal Data Exchange.

SPSS / PSPP Export

You can export your coded data as SPSS syntax file. This file can also bes used the in free basic PSPP version. When executed in SPSS or PSPP, your quotations become cases and your codes and code groups variables. In addition, further identifying information in form of variables is provided like the document name and number for each case, start and end position and creation date. These variables allow you to aggregate your data in SPSS if needed. See SPSS Export.

If you need a less detailed output, see Code Document Table. The table provides an output that is already aggregated by documents or document groups.

Generic Statistic Export for R, SAS, STATA, etc.

You can export your coded data as Excel file for further analysis in any statistical package. Quotations become cases and codes and code groups variables. In addition, further identifying information in form of variables is provided like the document name and number for each case, start and end position and creation date. See Generic Export For Further Statistical Analysis.

Image Files

- Networks can be saved in various graphic file formats (jpg, png, tiff, gif, bmp). See Exporting Networks.
- Word clouds can be exported as jpg files. See Word Clouds.
- The results of the Code Co-occurrence and the Code Document Table can be visualized in form of Sankey Diagrams. See Visualization of the Code Co-occurrence Table and Visualization of the Code Document Table.

Main Steps in Working with ATLAS.ti

Data and Project Management

A first important but often neglected aspect of a project is data and project management. The first step is data preparation. You find more information on supported file formats in the section Supported File Formats.

Apart from analyzing your data, you also manage digital content, and it is important to know how the software does it. For detailed information, see the section on Project Management.

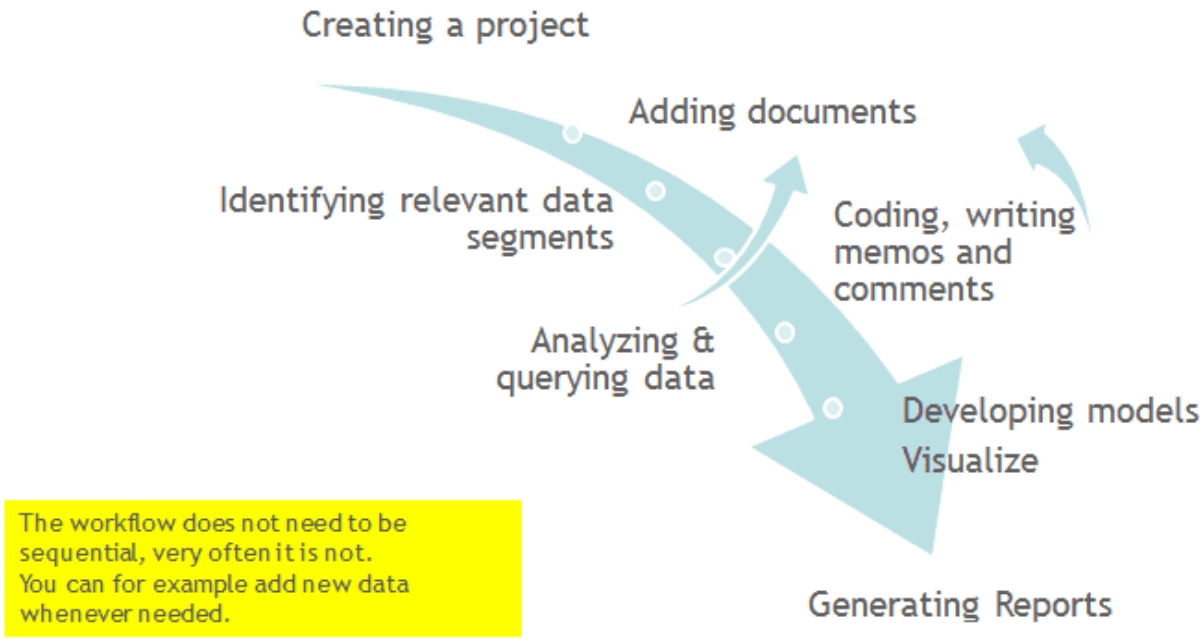
If you work in a team, please read the following section: Team Work.

Two Principal Modes of Working

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 in networks, in addition to writing some more comments and memos.

The figure below illustrates the main steps, starting with the creation of a project, adding documents, identifying interesting things in the data and coding them. Memos and comments can be written at any stage of the process, whereas there is possibly a shift from writing comments to more extensive memo writing during the latter stages of the analysis. Once your data is coded, it is ready to be queried using the various analysis tools provided. The insights gained can then be visualized using the ATLAS.ti network function.

Some steps need to be taken in sequence. For instance, logic dictates that you cannot query anything or look for co-occurrences if your data has not yet been coded. But other than that there are no strict rules.



Data Level Work

Data-level activities include Exploring Data using word clouds and word lists, segmenting the data that you have assigned to a project into quotations, adding comments to respective passages note-making/annotating, linking data segments to each other called hyperlinking in ATLAS.ti, and coding data segments 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.

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 work space into a graphical playground where you can construct concepts and theories based on relationships between codes, data segments, or memos.

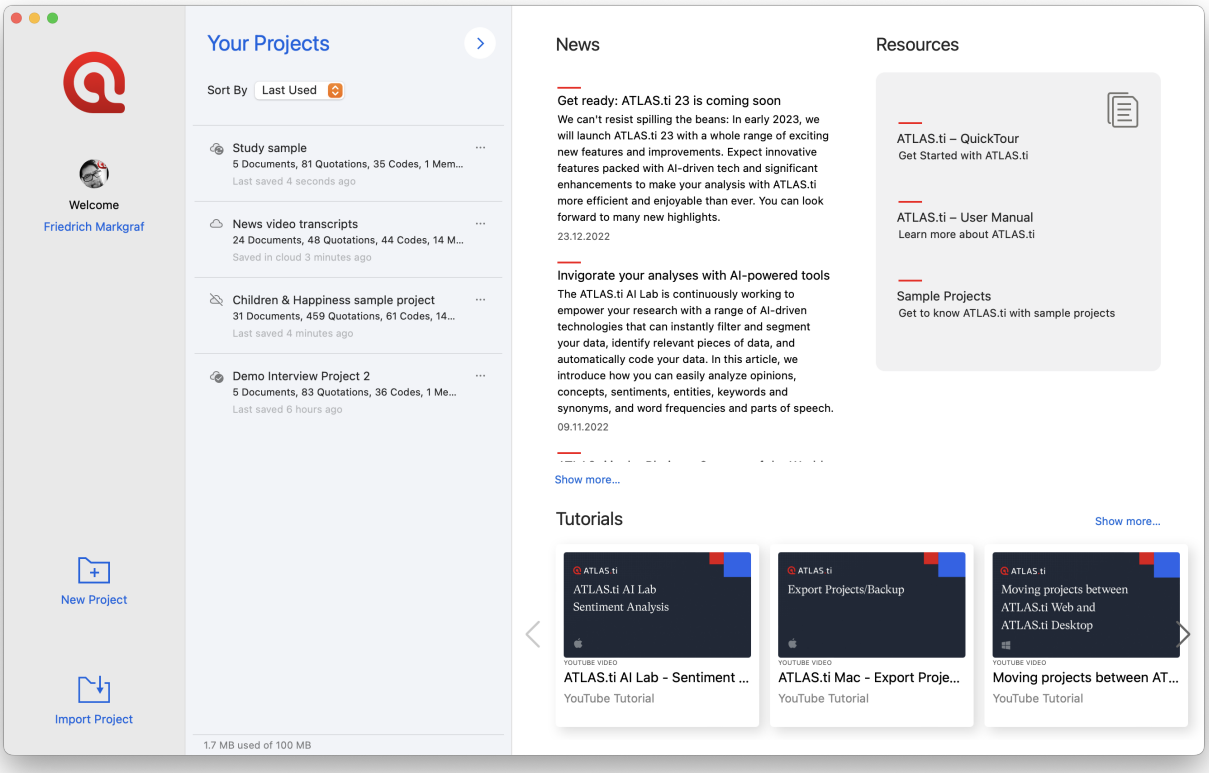
This process sometimes uncovers other relations in the data that were not obvious before and still allows you the ability to instantly revert to your notes or primary data selection. - For more detail, see Querying Data and Working With Networks.

Welcome Screen

When you open ATLAS.ti, you see the Welcome Screen. It is divided into three parts:

Welcome Screen (left-hand side)

On the left-hand side, you find licence information, you can create a new project or import an existing project.

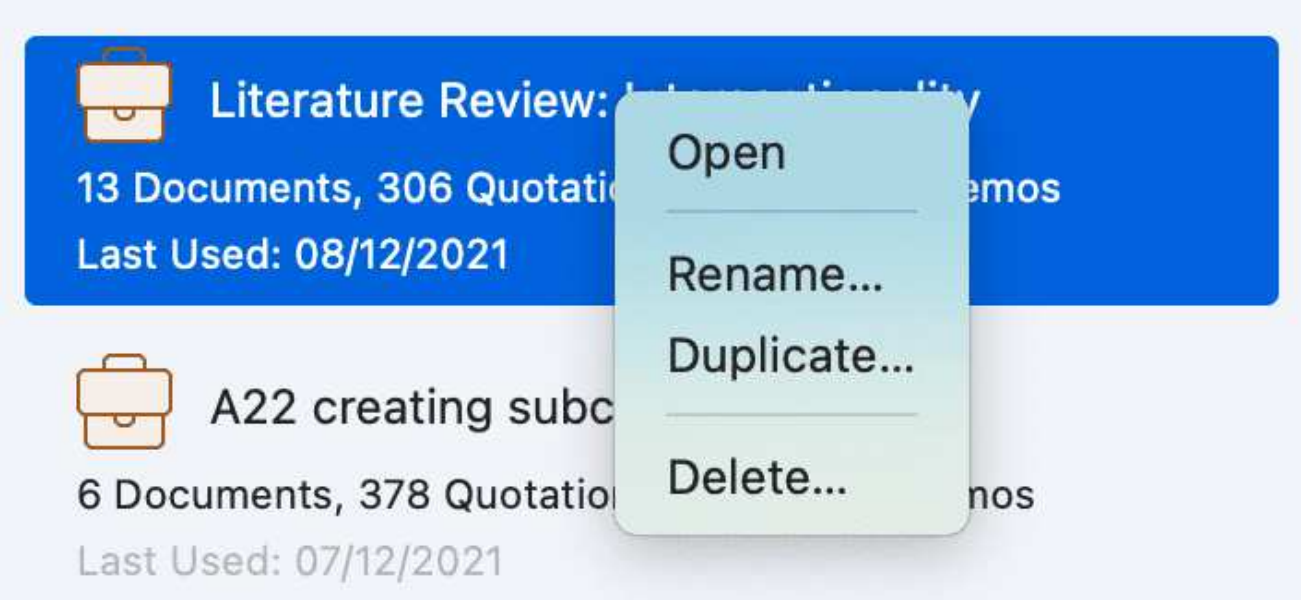


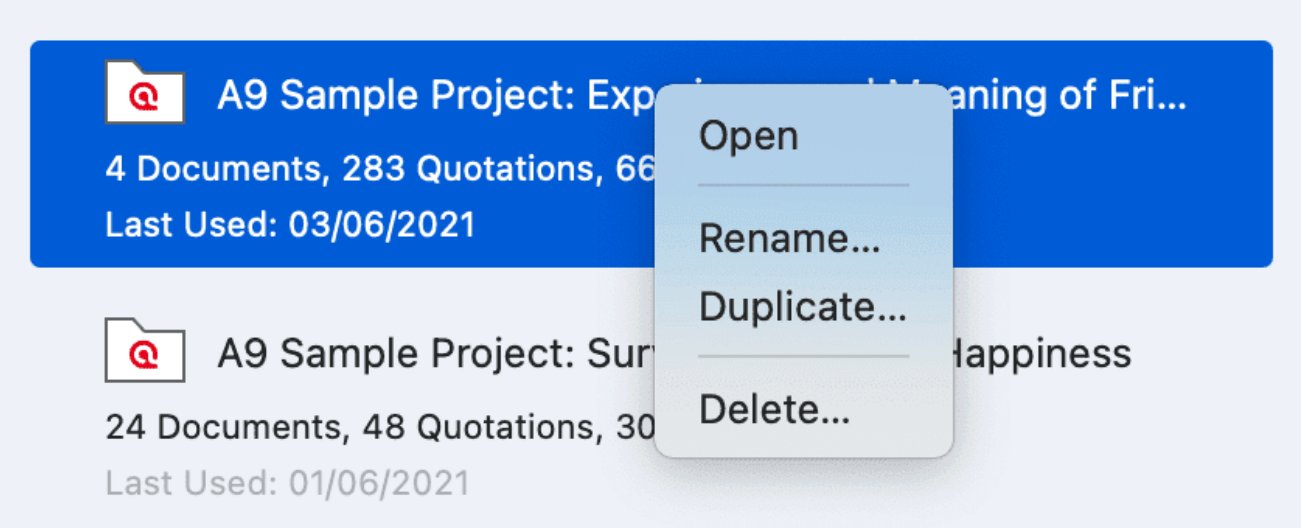
Welcome Screen (middle section)

In the middle section you can see and access all of your projects. You can **sort** projects by last used, name and last saved.

Context menu for projects

The secondary menu for projects has the following options: **open a project**, **rename a project**, **duplicate a project**, and **delete a project**.





If you delete a project, it is deleted permanently. It cannot be recovered. If you still want to have access to the project at a later time, make sure that you export it first and store a project bundle file at a secure location.

Welcome Screen (right-hand side)

On the right-hand side of the Welcome Screen, you have access to useful information and resources:

- **News** about current workshops, updates, newsletters, interesting articles, etc.
- **Resources** Quick Tour, User Manual and sample projects
- **Video Tutorial**: Learn ATLAS.ti quickly by watching our video tutorials that walk you through the entire process from project creation to analysis and reporting step by step.

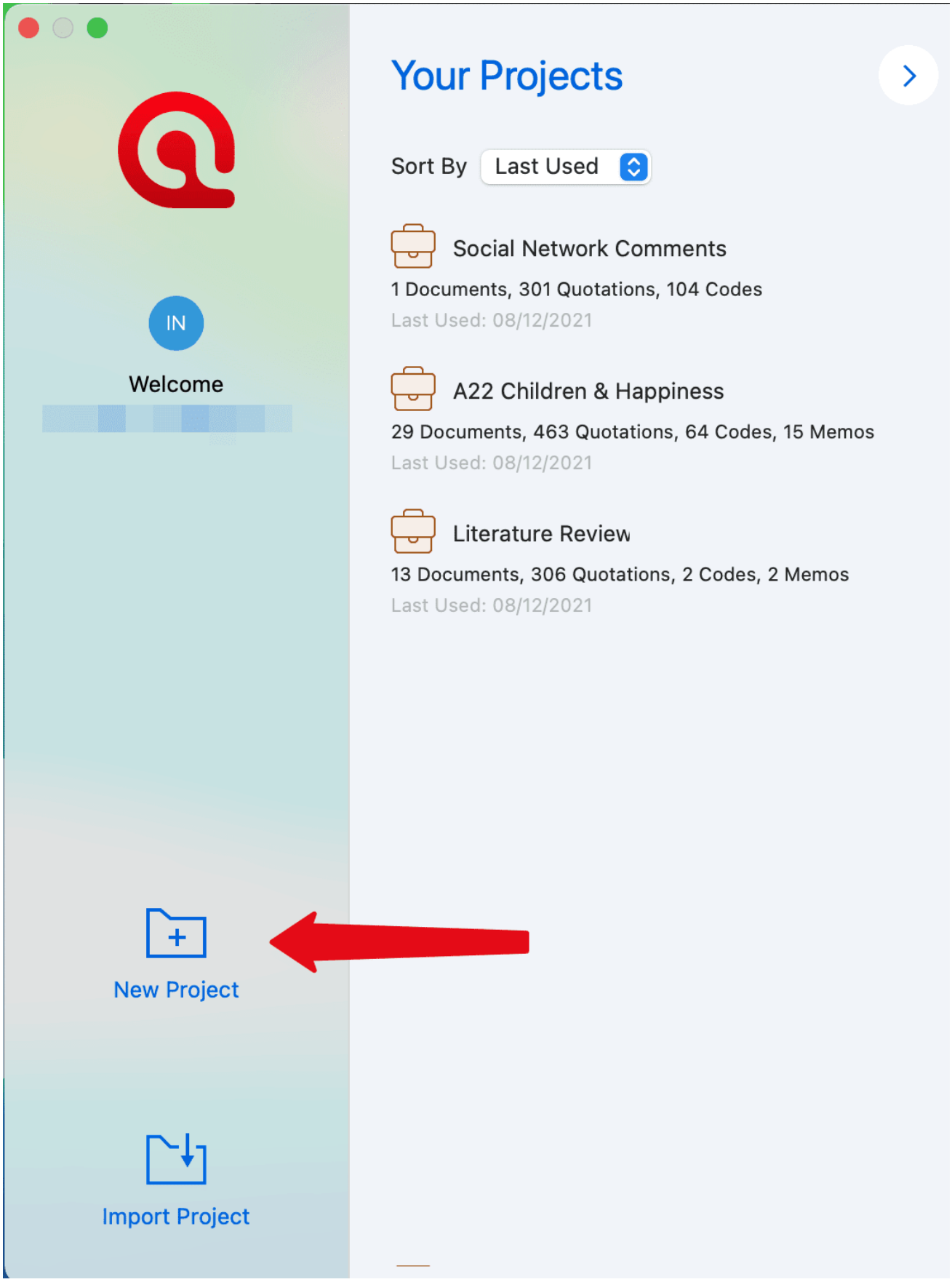
If you rather use this space to view the list of your projects, you can click on the button with the right-arrow.

If you want to see the screen with the news and resources again, click on the button with the left-arrow.

Creating a New Project

Video Tutorial: Creating a project and adding data. If you just started ATLAS.ti,

> In the opening window on the left-hand side of the screen click on the button: Create New Project.



Enter a name for the project and click **Create**.

If a project is already open,

> From the main menu, select **Project** > **New**. Enter a name for the project and click **Create**.

Importing an Existing Project

The following project types can be imported:

Version	File Type
Version 8 or newer (Windows and Mac)	Project Bundle
ATLAS.ti Web	Project Bundle
Version 7	Transfer bundle
Project Exchange format	QDPX

Exported projects from the Ipad or Android apps can also be imported. ATLAS.ti Cloud projects can currently not be imported into the desktop version.

How to Import Projects

If you just started ATLAS.ti,

> Select the **Import Project** option on the right-hand side of the opening screen.

If ATLAS.ti is already open,

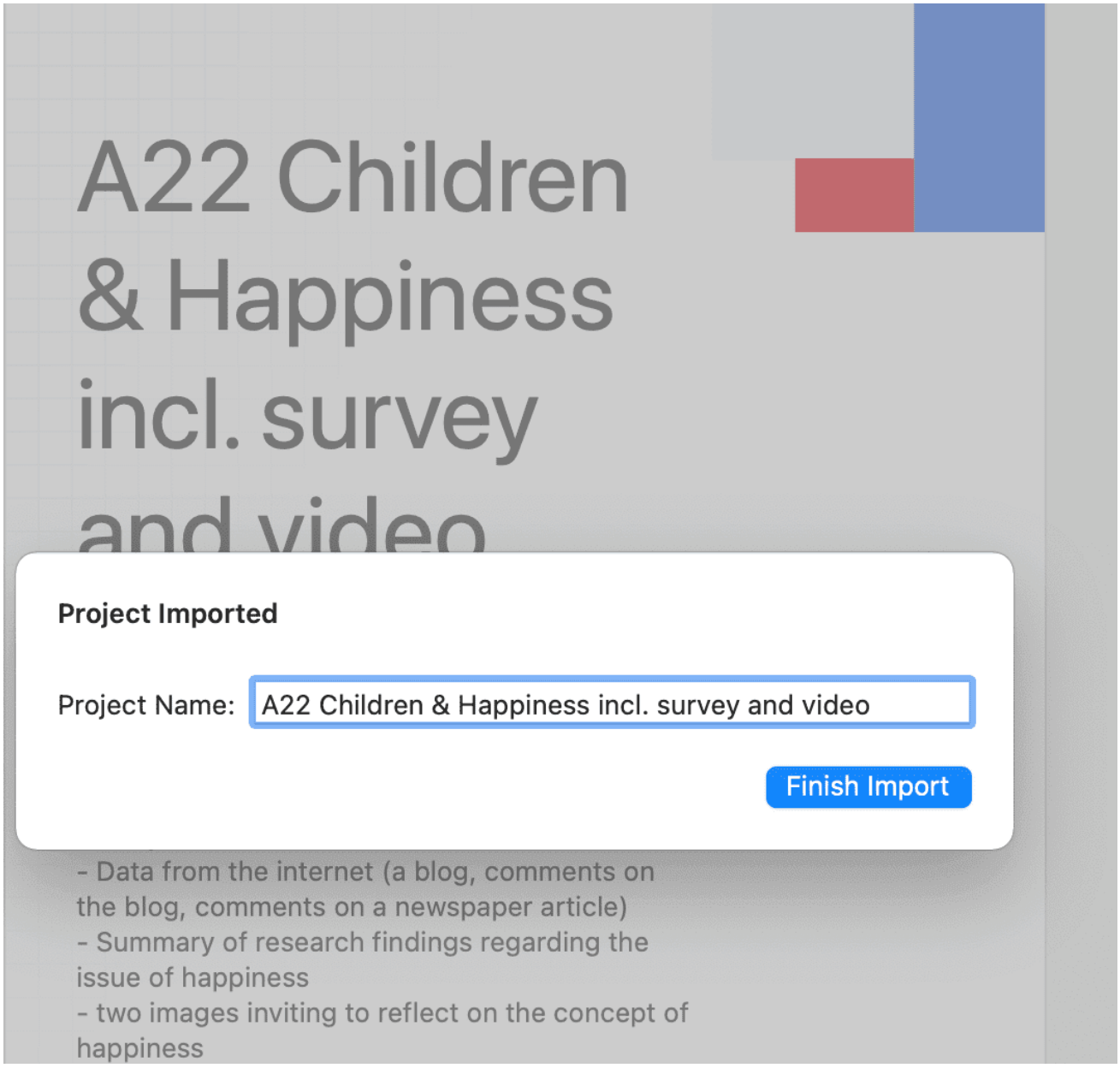
> Double-click on a project bundle file on your computer. This will open ATLAS.ti if it is not already open, and you can import the project.

OR:

> Select **Project** > **Import Project.** Rename the project if appropriate.

Options

- You have the option to rename the project before importing. This is useful for team project work and if you do not want to overwrite an existing version.



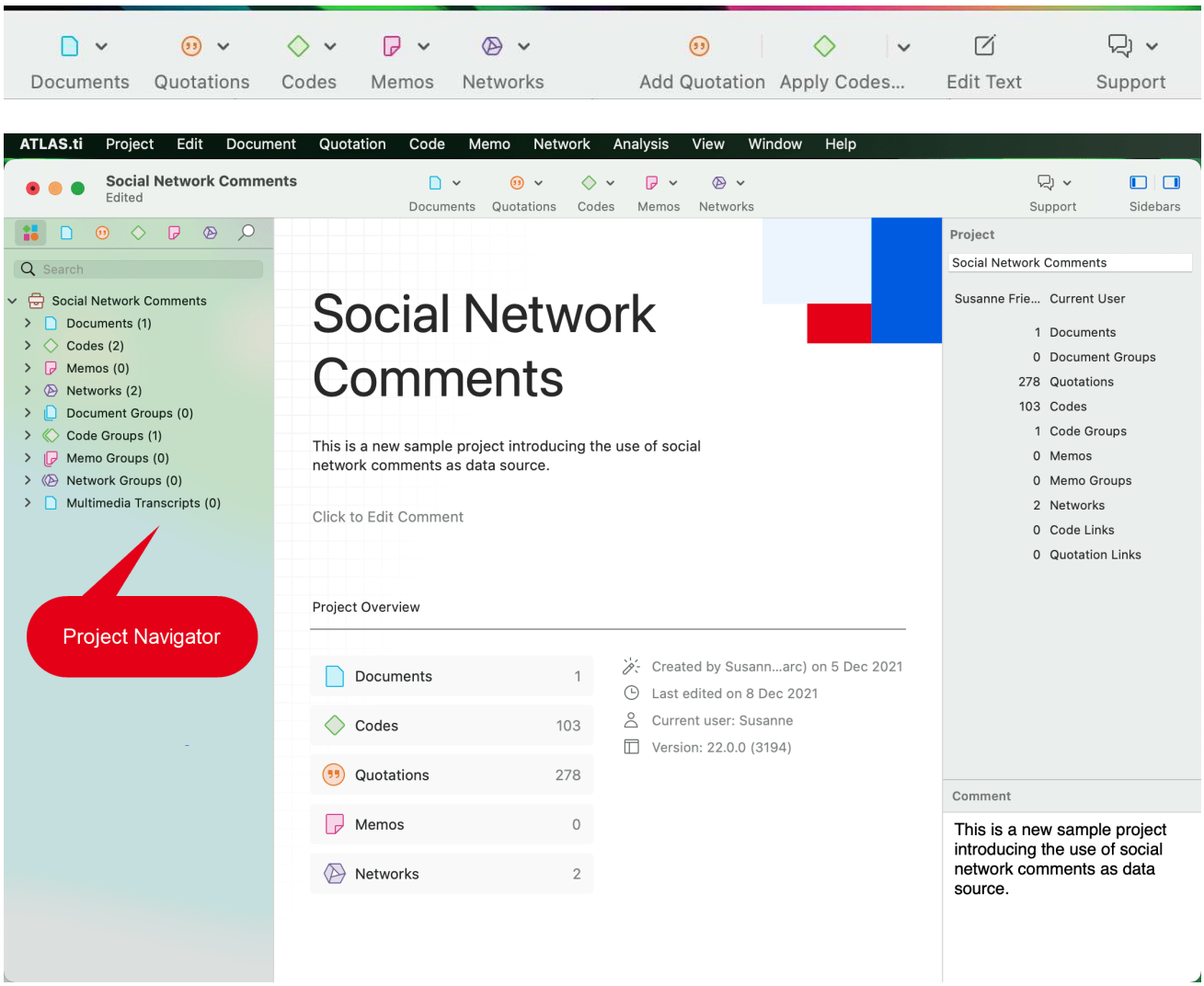
If the project contains Linked Media Files

If the project contains linked media files, and the files have not been included in the bundle, you can relink them. This requires that you have a copy of the file on your computer, or a file that is accessible on an external drive or server.

The ATLAS.ti Interface

When you open a project, you see the menu on top, the project navigator on the left-hand side and an inspector on the right-hand side. The inspector displays more information of the current active entity. After just opening a project, this is the project.

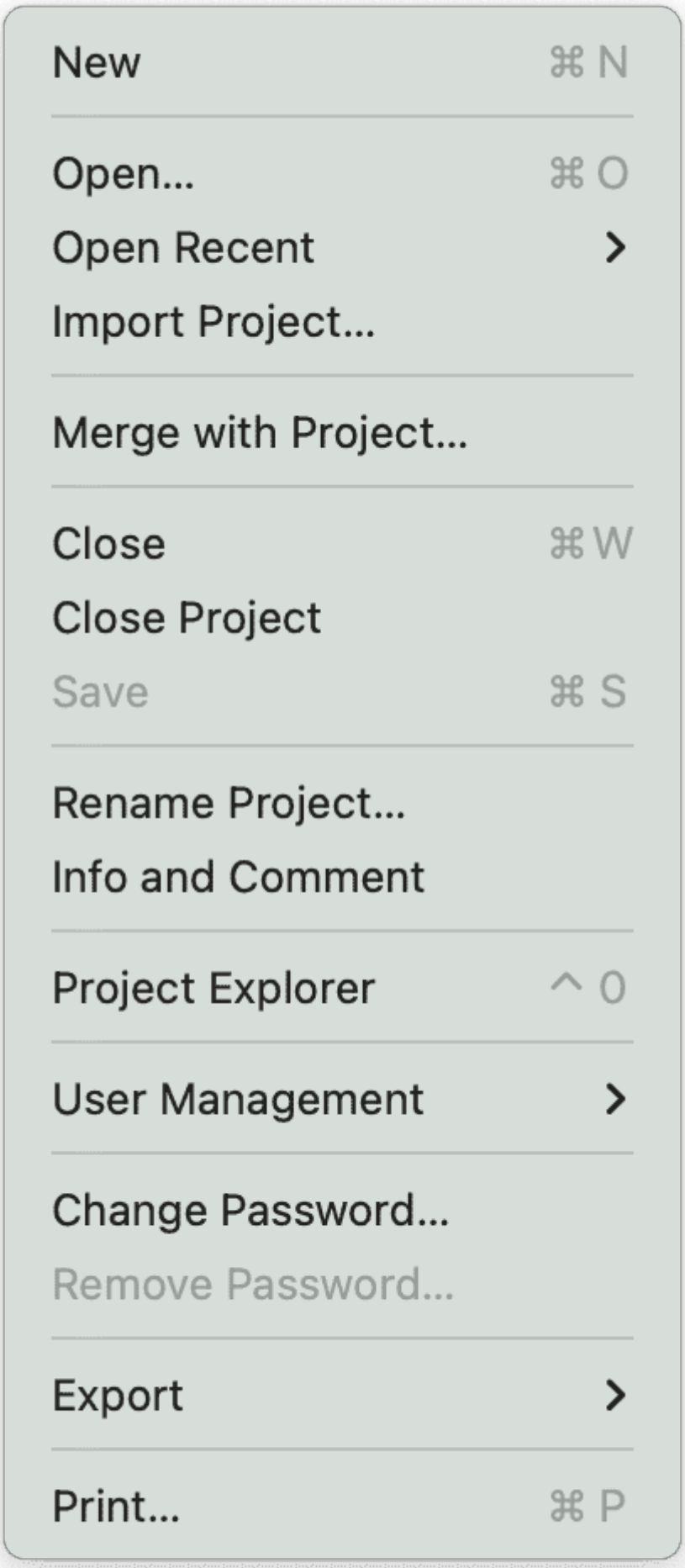
Below the main menu, you see a toolbar that allows quick access to the Document, Quotation, Code, Memo and Network Manager.



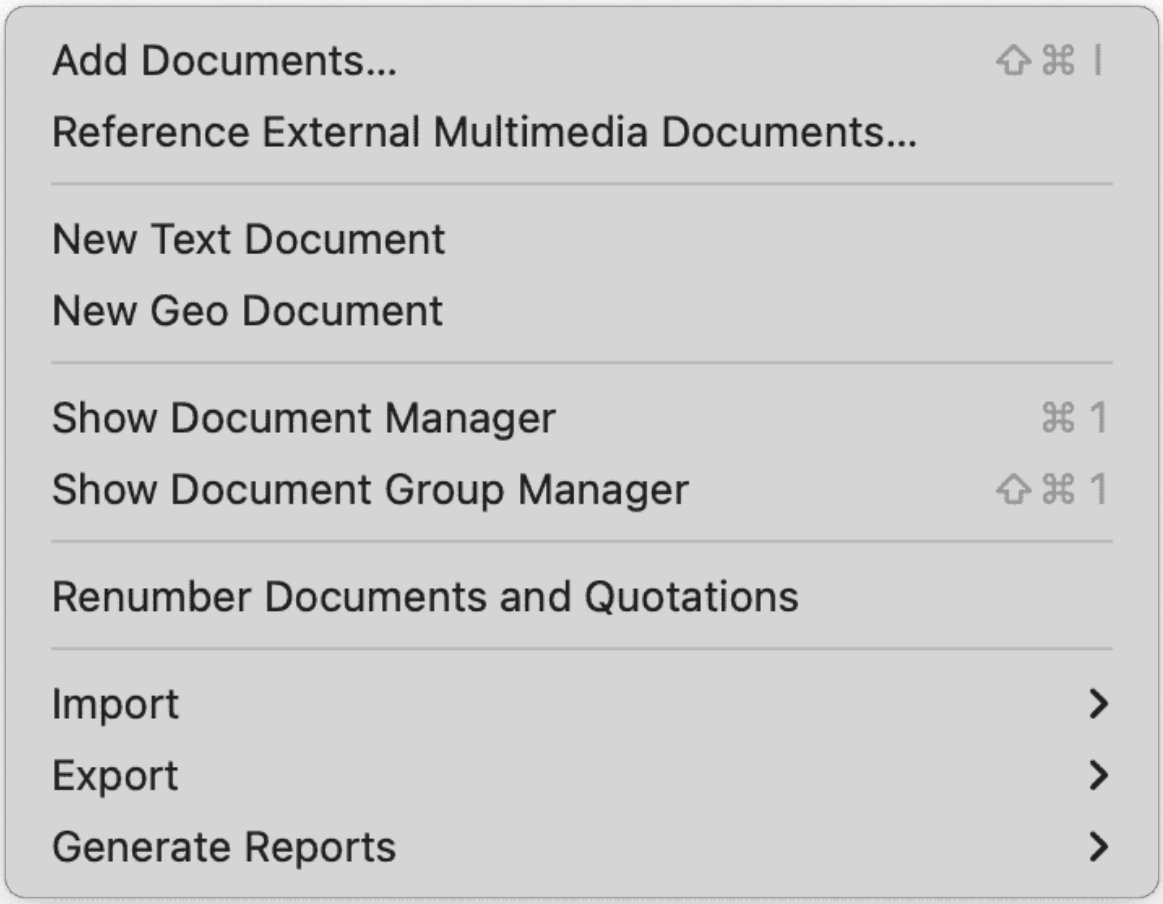
You also find the usual **show** and **hide** icons for the sidebars and the inspector.

The Main Menu

The **Project menu** gives access to all project related functions:

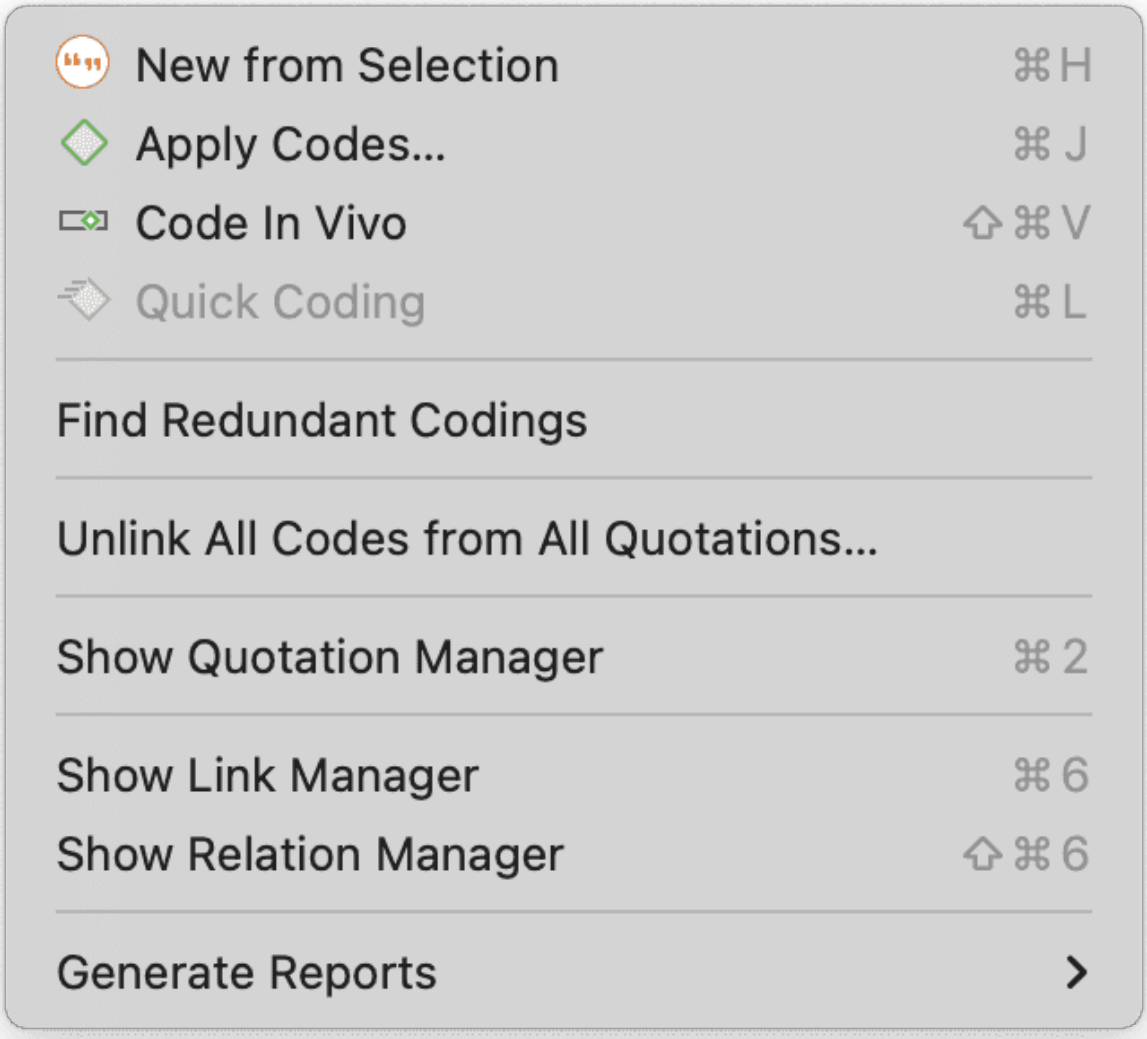

New ⌘ N
Open... ⌘ O
Open Recent
Import Project...
Merge with Project...
Close ⌘ W
Close Project
Save ⌘ S
Rename Project...
Info and Comment
Project Explorer ^ 0
User Management
Change Password...
Remove Password...
Export
Print... ⌘ P

- opening, closing or renaming a project
- importing a project
- user management
- merging projects
- project export
- project export for universal data exchange
- exporting data for further statistical analysis



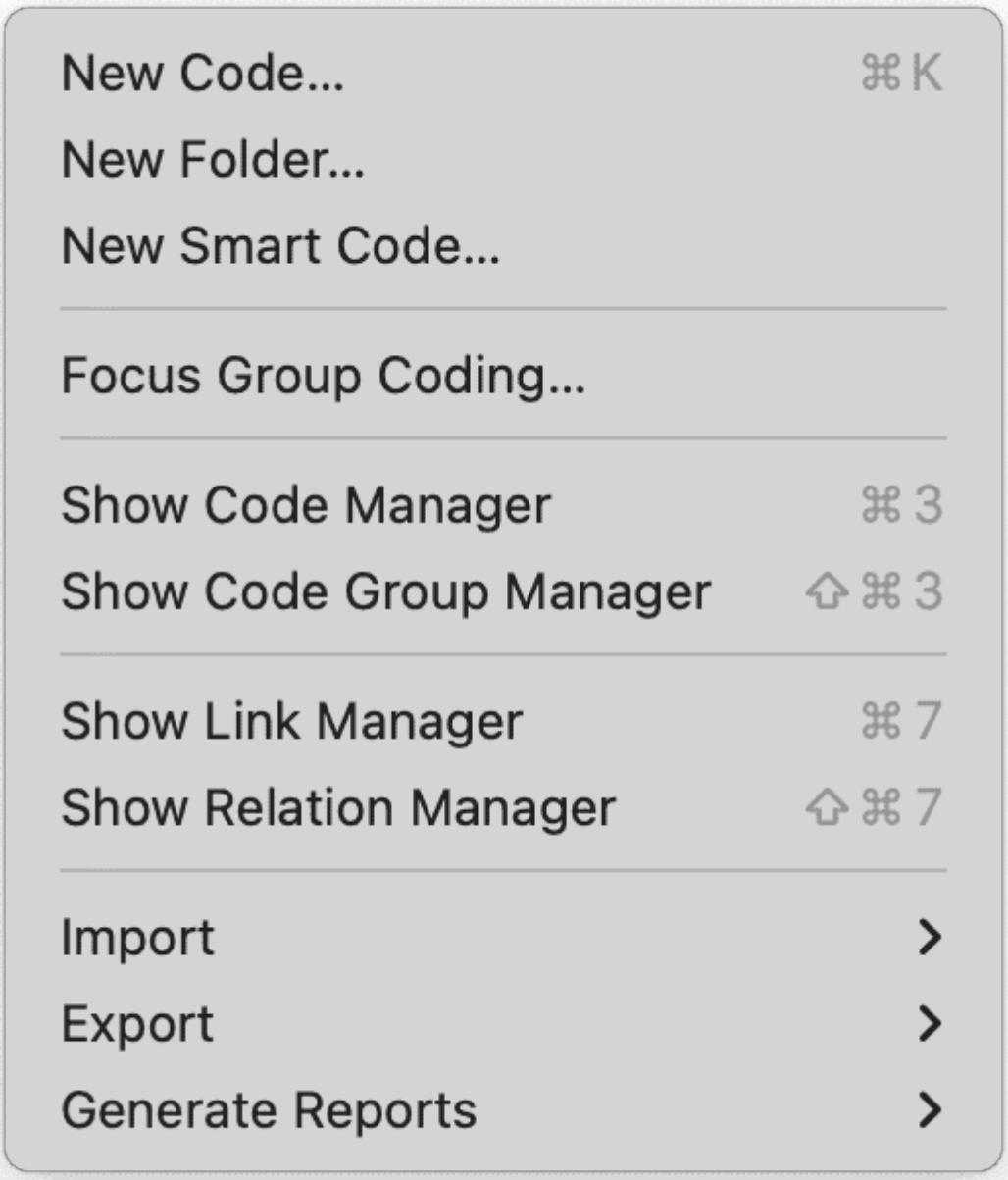
The **Document menu** gives access to all document related functions:

- Adding Documents
- Adding a Geo Document
- Importing Survey Data
- Importing Reference Manager Data
- Importing Social Network Comments
- Showing the Document Manager
- Renumbering Documents and Quotations
- Importing Document Groups
- Exporting Document Groups
- Generating Reports



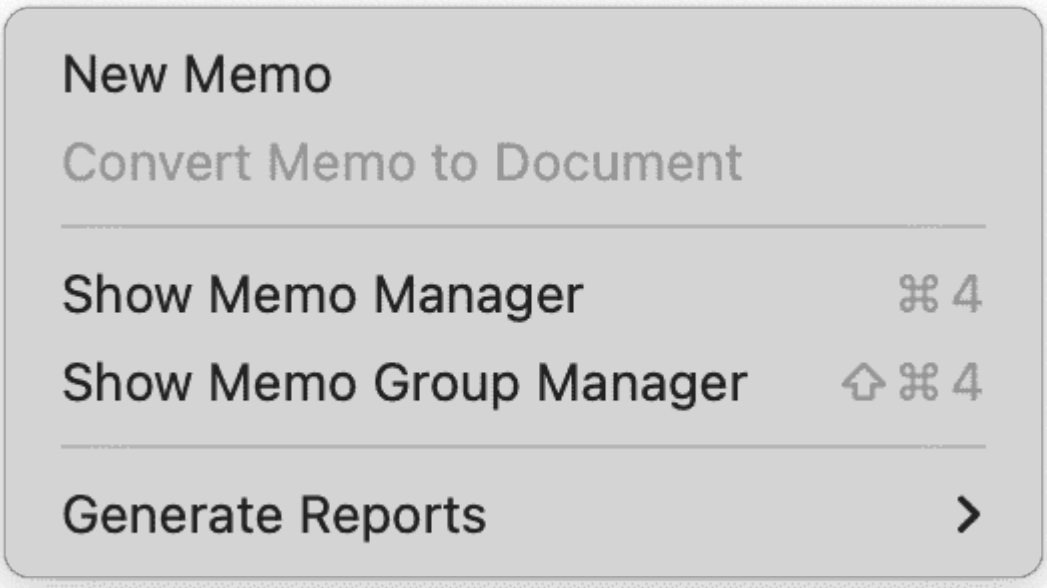
The **Quotation menu** gives access to all quotation related functions:

- Creating Quotations
- Applying Codes
- Finding Redundant Codings
- Unlinking all Codes from all Quotations
- Showing the Quotation Manager
- Showing the Link Manager
- Showing the Relation Manager
- Generating Reports



The **Code menu** gives access to all code related functions:

- Creating a new code
- Creating a new smart code
- Focus Group Coding
- Showing the Code Manager
- Showing the Link Manager
- Showing the Relation Manager
- Importing & Exporting a Code Book
- Generating Reports

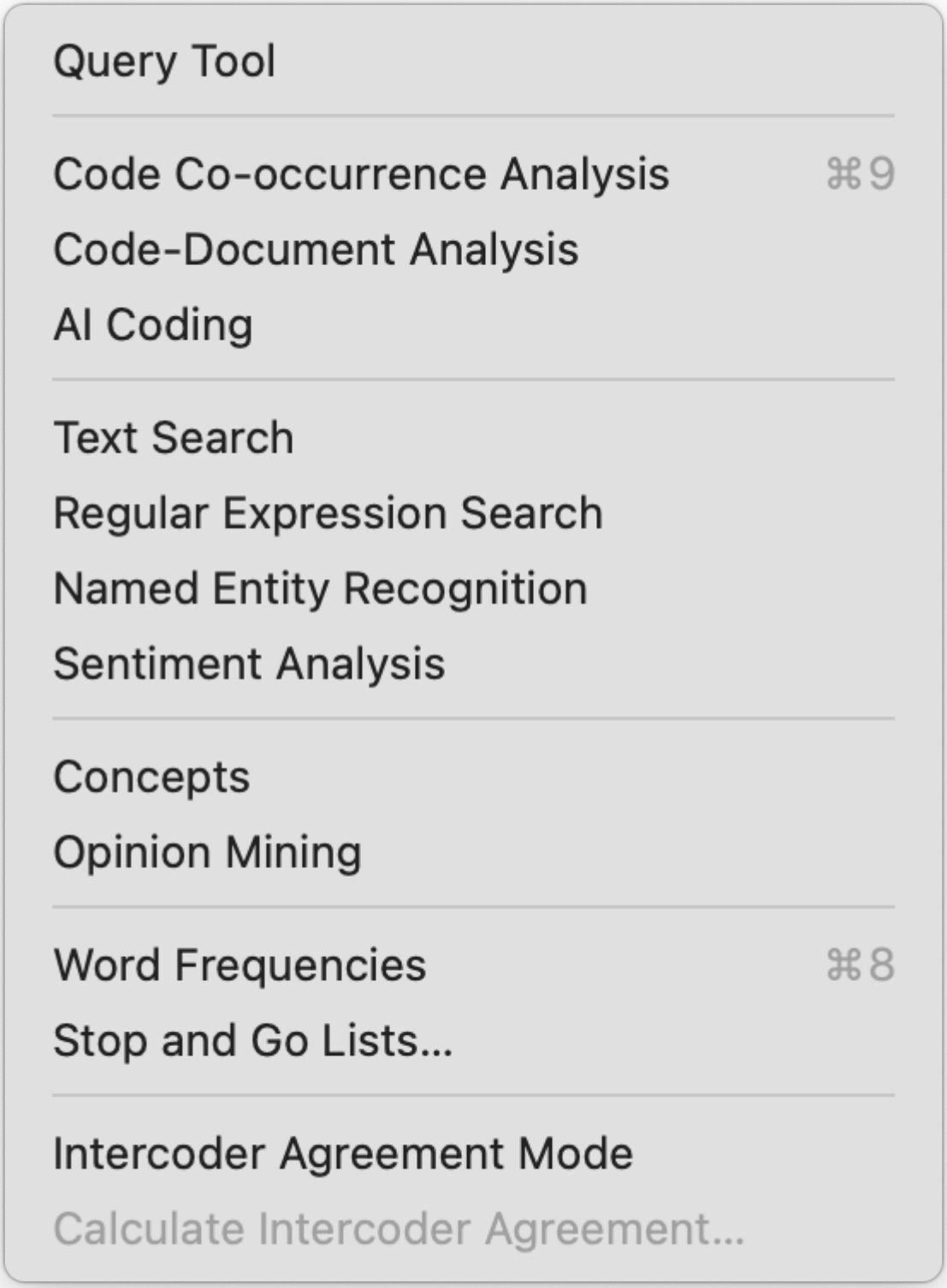


The **Memo menu** gives access to all memo related functions:

- Creating a memo
- Convert Memo to Document
- Showing the Memo Manager
- Generating Reports

The **Network menu** gives access to all network related functions:

- Creating a network
- Showing the Network Manager
- Generating Reports



The **Analysis menu** gives access to all analytic functions that you need after you have coded the data. You also find the Word List / Word Cloud option under this menu:

- The Query Tool
- Code Co-occurrence Tools
- Code Document Analysis Tools

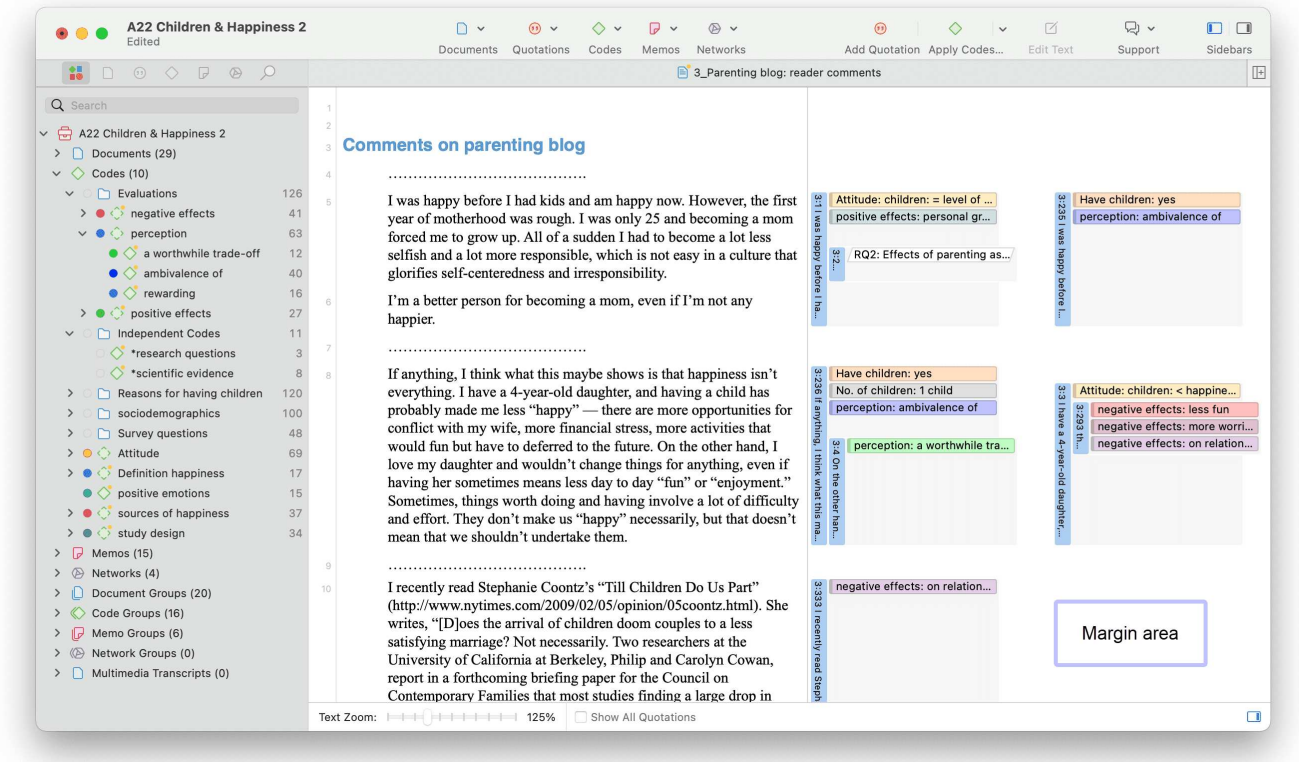
- AI Coding
- Text Search
- Regular Expression Search
- Named Entity Recognition
- Sentiment Analysis
- Concepts Tables
- Creating Word lists and Clouds
- Accessing stop and go lists
- Setting inter-coder agreement mode
- Opening the inter-coder agreement analysis tool

Software Navigation

In the following it is explained how to work with the various entities and features in the main work space. If you want to click along, you may want to open the Children & Happiness sample project.

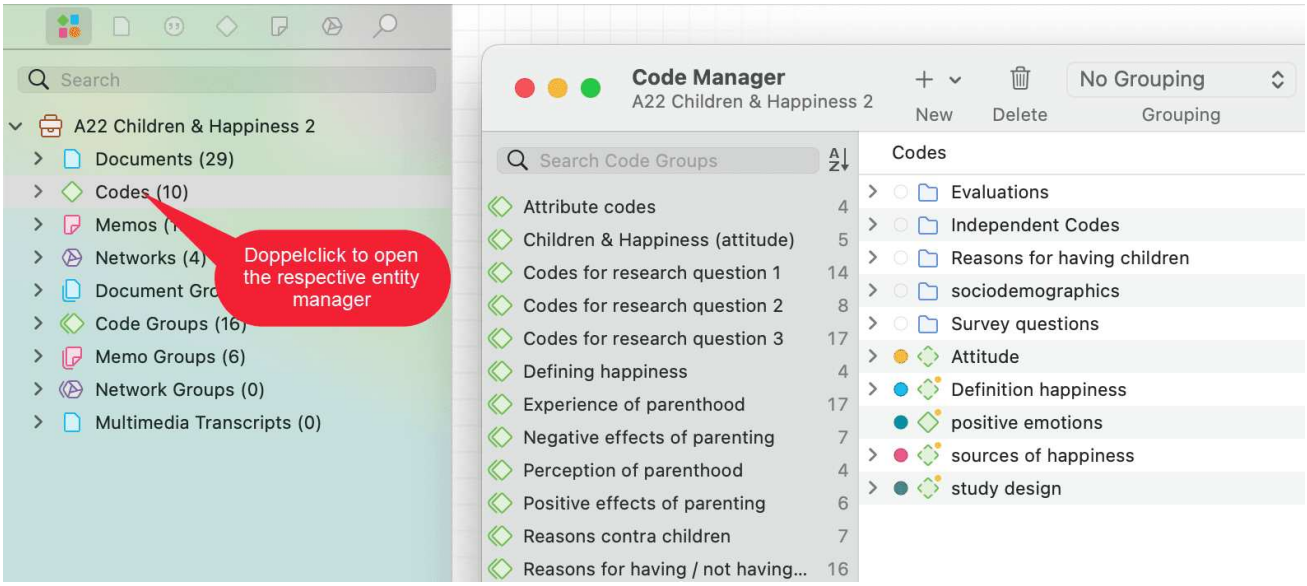
After you downloaded the project bundle file, import it. See Importing An Existing Project .

When you open a project, the Project Navigator opens automatically on the left-hand side. From the main branches you can access documents, codes, memos, networks and all groups. If you are looking for something in particular, you can enter a search term into the search field. If you open the branches of the various entities, they will only show you items that contain the search term.



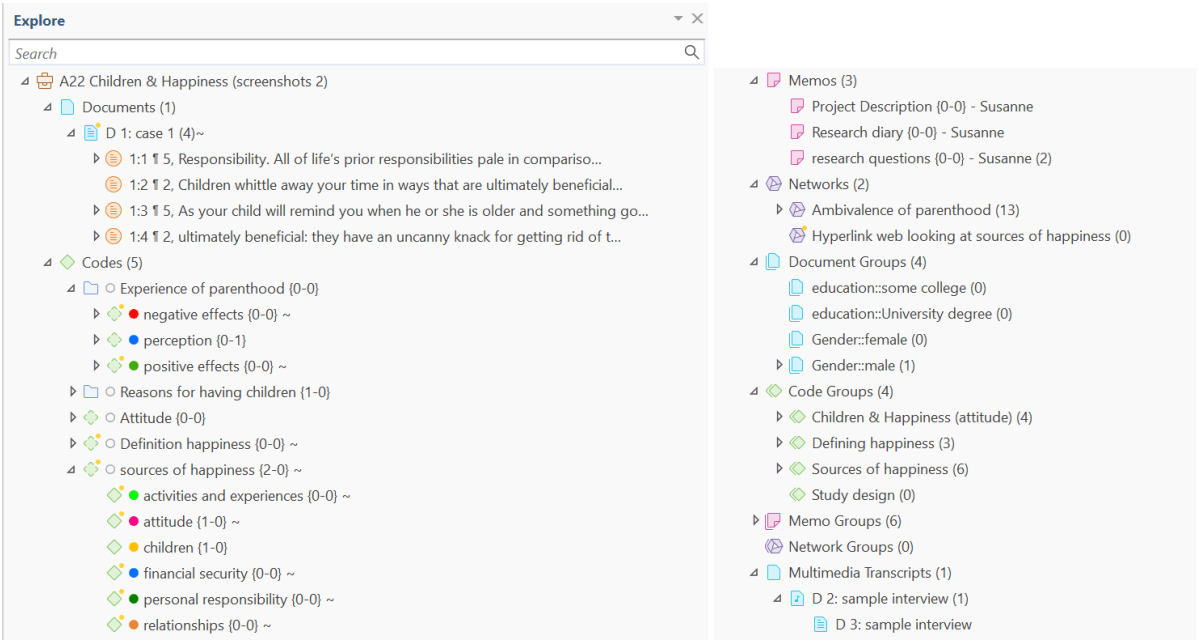
> To open a branch, click on the triangle in front of each entity.

> When double-clicking a main branch, the respective manager of the selected entity type is opened. See Entity Managers.



- Under the main **Documents** branch, you see all documents. Below each document, you can access all quotations of a document.
- Under the main **Codes** branch, you see the folders, categories, subcodes and independent codes. For further information see: Basic concepts
- Under the main **Memos** branch, you see the list of all memos. On the next level, you see all linked entities, which for memos can be other memos, quotations and codes.
- Under the main **Networks** branch, you see the list of all networks. On the next level, you see all entities that are contained in the network.
- Under the **Groups** branches, you see the list of all groups and below each group, the list of all members of the selected group.

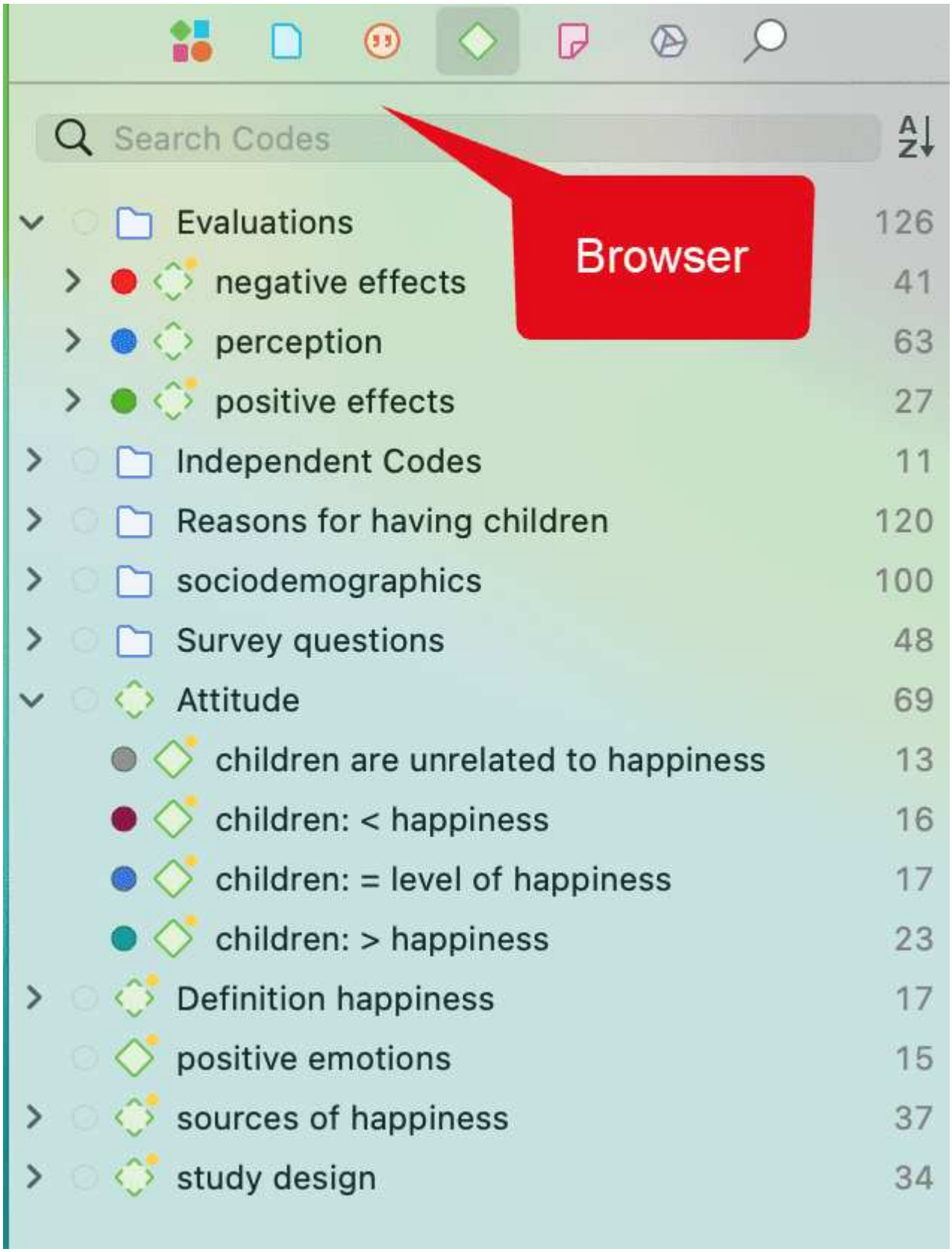
If an entity has a comment, this is indicated by a yellow dot attached to the entity icon.



Browsers

In addition to the Project Navigator that contains all project items, you can open browsers that only contain one entity type. Browsers are available for documents, quotations, memos and networks.

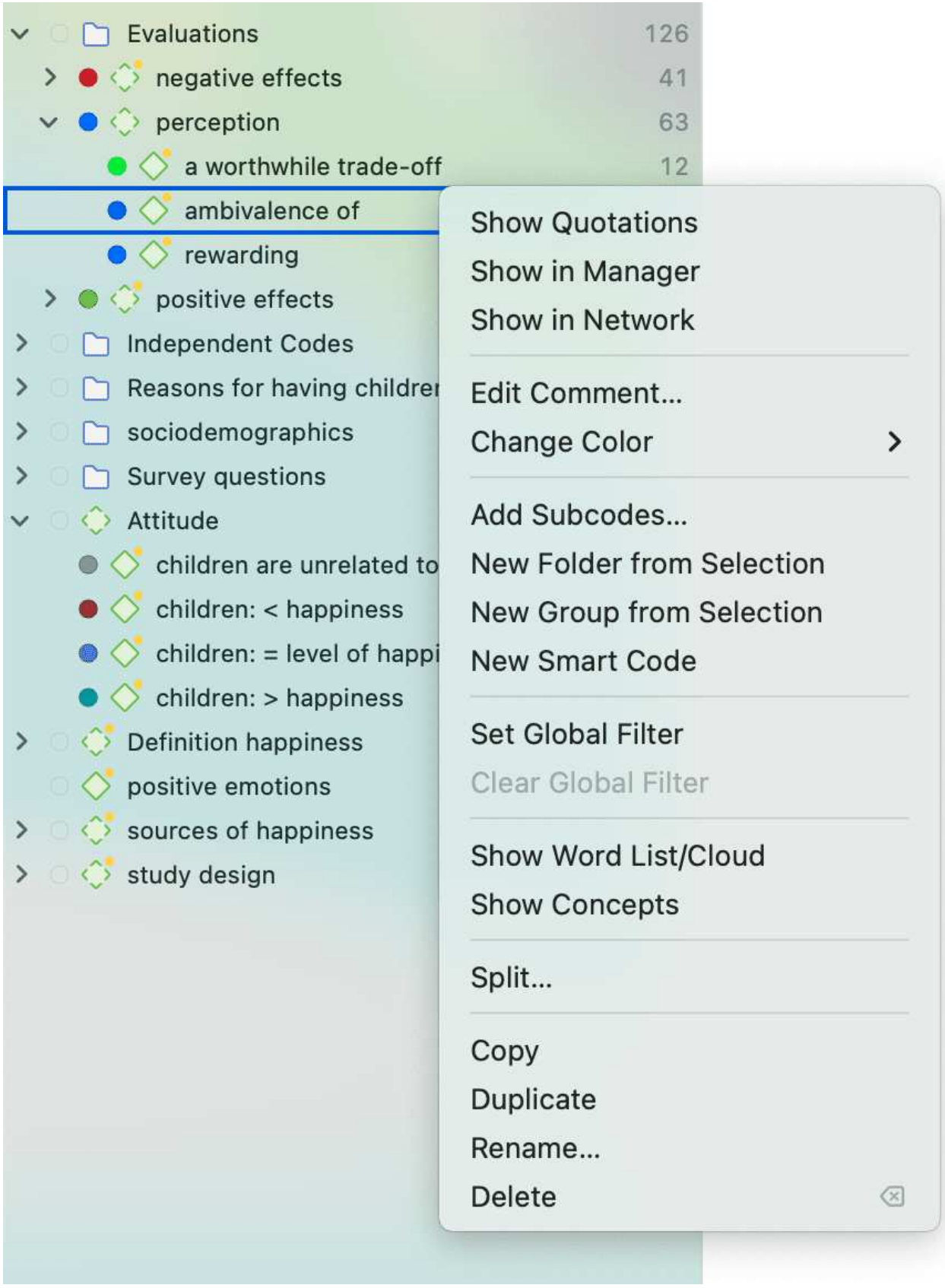
To open one of the browsers, click on the entity icons above the search field.



The single entity browsers open in tabs next to the Project Navigator. Each browser also has a search field on top. This facilitates working with long lists.

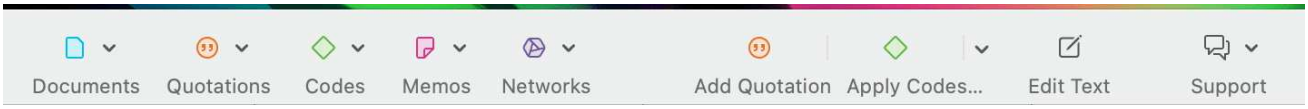
Context Menus

Each item in the navigation panel has a context menu, which means a context-sensitive menu opens when you right-click. Depending on the entity that you click, each context-menu will be slightly different.


Evaluations 126
negative effects 41
perception 63
a worthwhile trade-off 12
ambivalence of
rewarding
positive effects
Independent Codes
Reasons for having children
sociodemographics
Survey questions
Attitude
children are unrelated to
children: < happiness
children: = level of happi
children: > happiness
Definition happiness
positive emotions
sources of happiness
study design
Show Quotations
Show in Manager
Show in Network
Edit Comment...
Change Color
Add Subcodes...
New Folder from Selection
New Group from Selection
New Smart Code
Set Global Filter
Clear Global Filter
Show Word List/Cloud
Show Concepts
Split...
Copy
Duplicate
Rename...
Delete

Toolbar

Above the main work space you see a toolbar that gives you quick access to the five main entity types: documents, quotations, codes, memos and networks. Each entity icon has a drop-down menu that gives you access to the most frequently used options in relation to each entity type.



Drop-down Menu for Documents

- Opening the Document Manager
- Opening the Document Group Manager
- Add Documents
- Adding a New Text Document, for instance if you want to transcribe your data directly in ATLAS.ti
- Reference External Multimedia Documents
- Adding a New Geo Document
- Search & Code
- Focus Group Coding
- Show Word List/Cloud
- Show Concepts
- AI Coding

Drop-down Menu for Quotations

- Opening the Quotation Manager
- Opening the Link Manager
- Opening the Relation Manager

Drop-down Menu for Codes

- Opening the Code Manager
- Opening the Code Group Manager
- Opening the Link Manager
- Opening the Relation Manager
- Creating New Codes
- New Folder
- Show Word List/Cloud
- Show Concepts

Drop-down Menu for Memos

- Add a New Memo
- Opening the Memo Manager

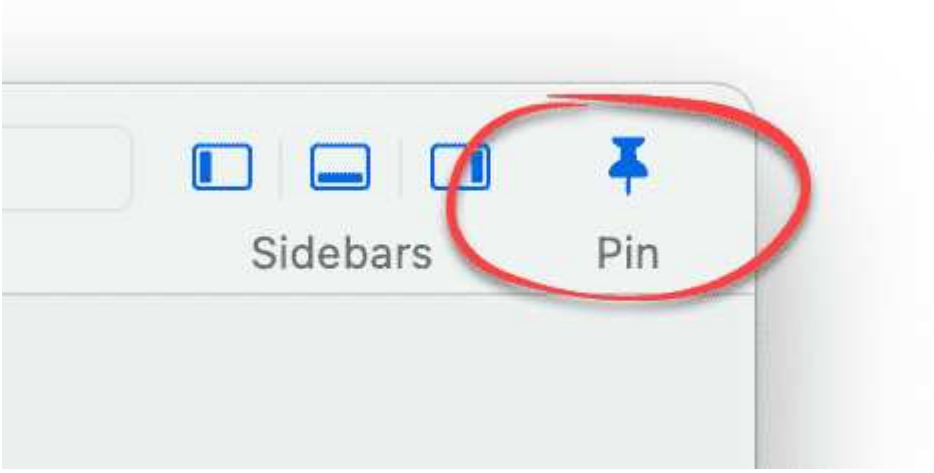
- Opening the Memo Group Manager

Drop-down Menu for Networks

- Creating a New Network
- Opening the Network Manager
- Opening the Network Group Manager

Docked and Floated Windows

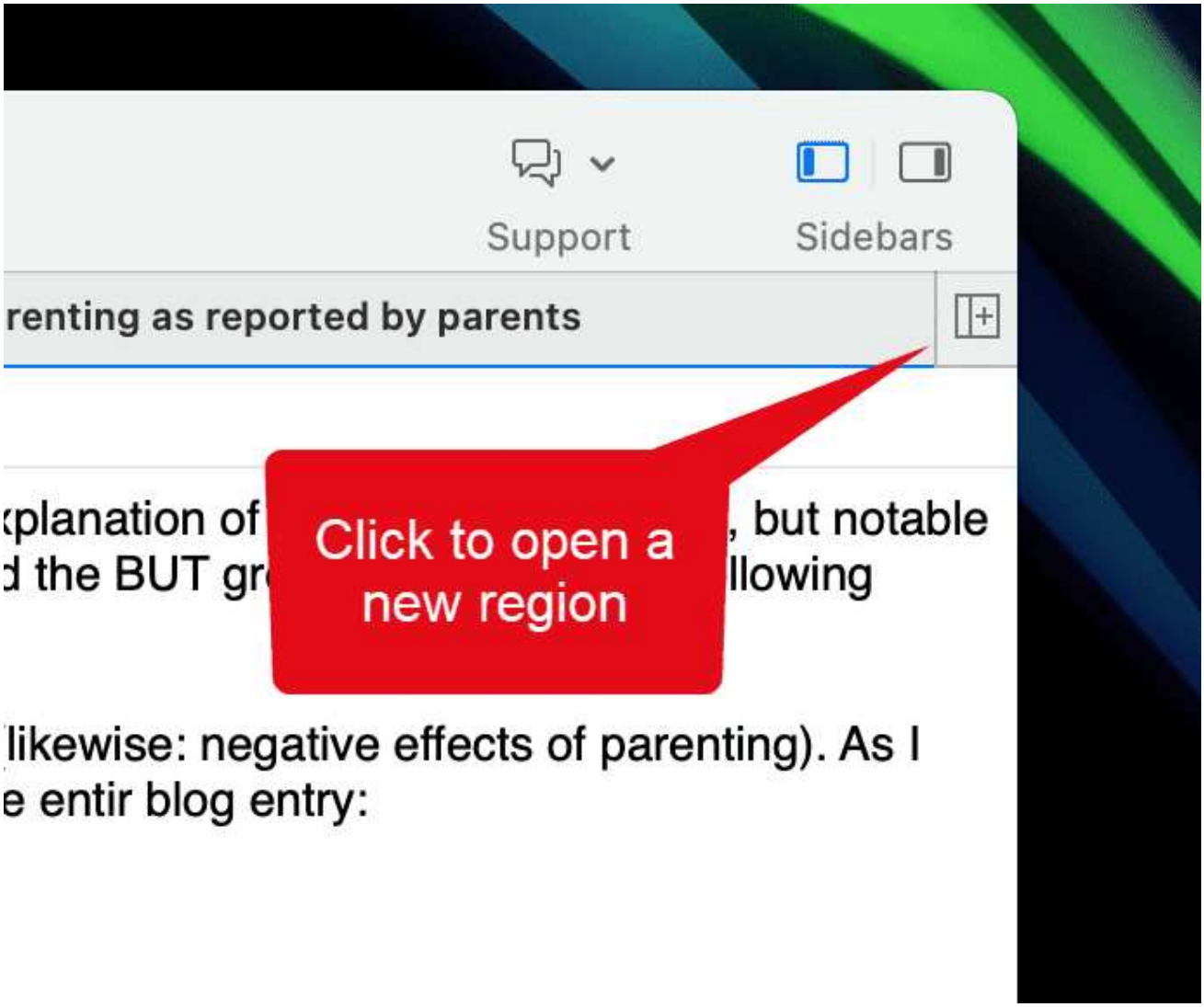
- All documents, memos and networks open in the main area and are docked.
- All managers and analysis tools open in a floated window. If you want that a floated window *stays on top* and does not disappear in the background if you open something else, you can pin it to your screen by clicking on the **pin** icon on the top right-hand side of the window. The pin then turns blue.



Working With Tabs and Regions

If you open multiple documents, or a document, a memo and a network, they are displayed in tabs. If you want to see them next to each other, you can open a second region:

> Click on the + button as shown in the screenshot below to open a new region:



> Select one of the tabbed items and drag and drop it into the empty region. If you drag it to the right-hand side until you see a colored bar, the item is displayed next to the other item(s). If you drag it to the top of the region, the item is displayed below the other item(s).

The Six Main Entity Types

The six main entity types in ATLAS.ti are:

- Documents
- Quotations
- Codes
- Memos
- Networks
- Links

All entity types have their own manager. See Entity Managers. The **Entity Managers** allow access to the entities and provide several options and functions.

To open a manager, double-click on the button in the ribbon.

Entity Managers are *child* or dependent window of the main editor. Child windows have some common properties:

- They are closely related to the parent window 'knows' about changes in the child window, like the selection of an item, and vice vera.
- They can be resized and positioned independently of their parent window.
- They are minimized when the parent window is minimized, and they are restored with their parent window.
- They are closed when the parent window is closed.
- However, child windows do NOT move with the parent window.

Miscellaneous Goodies

You can copy the content of every entity, be it a document name, a group name, a code, memo or quotation name, or a node in a network and paste it into an editor or a network.

If you copy an entity name from a list into an editor, the name is pasted.

If you copy a node and paste it into an editor, the name of the node is pasted.

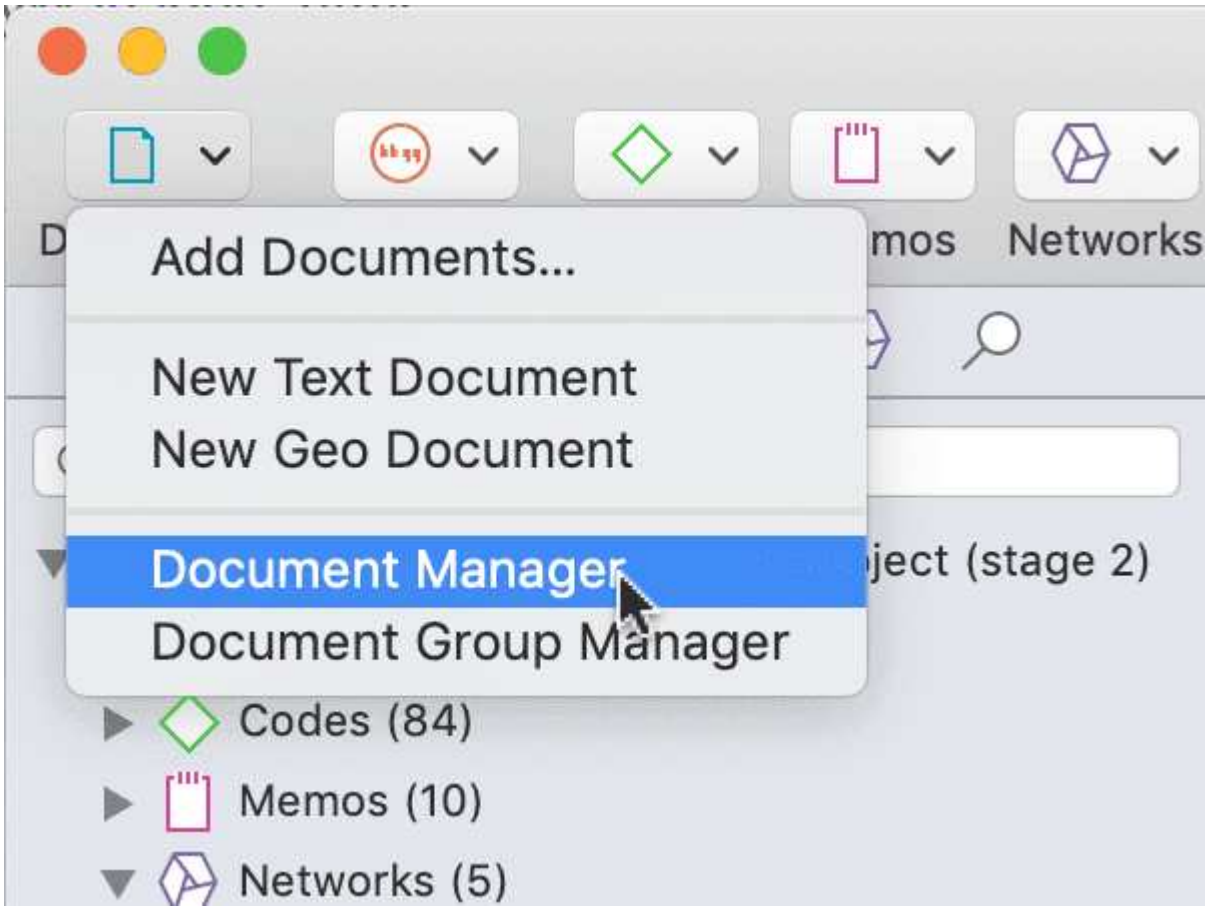
If you copy the name of an entity and paste it into a network, it is pasted as node. If links already exist, they will be shown immediately.

Entity Managers

There is a separate manager for each of the six entity types: Documents, Quotations, Codes, Memos, Networks, and Links. The **Entity Managers** allow access to the entities and provide several options and functions. As there are differences among the various entity types, you find a section on each of the managers.

Launching an Entity Manager

To open for instance the Document Manager, double-click on the main **Documents** branch in the **Project Explorer**; or select the Document Manager from the Document drop-down menu in the toolbar.



The Quotation Manager can be launched from the **toolbar** or the **Quotation menu**.

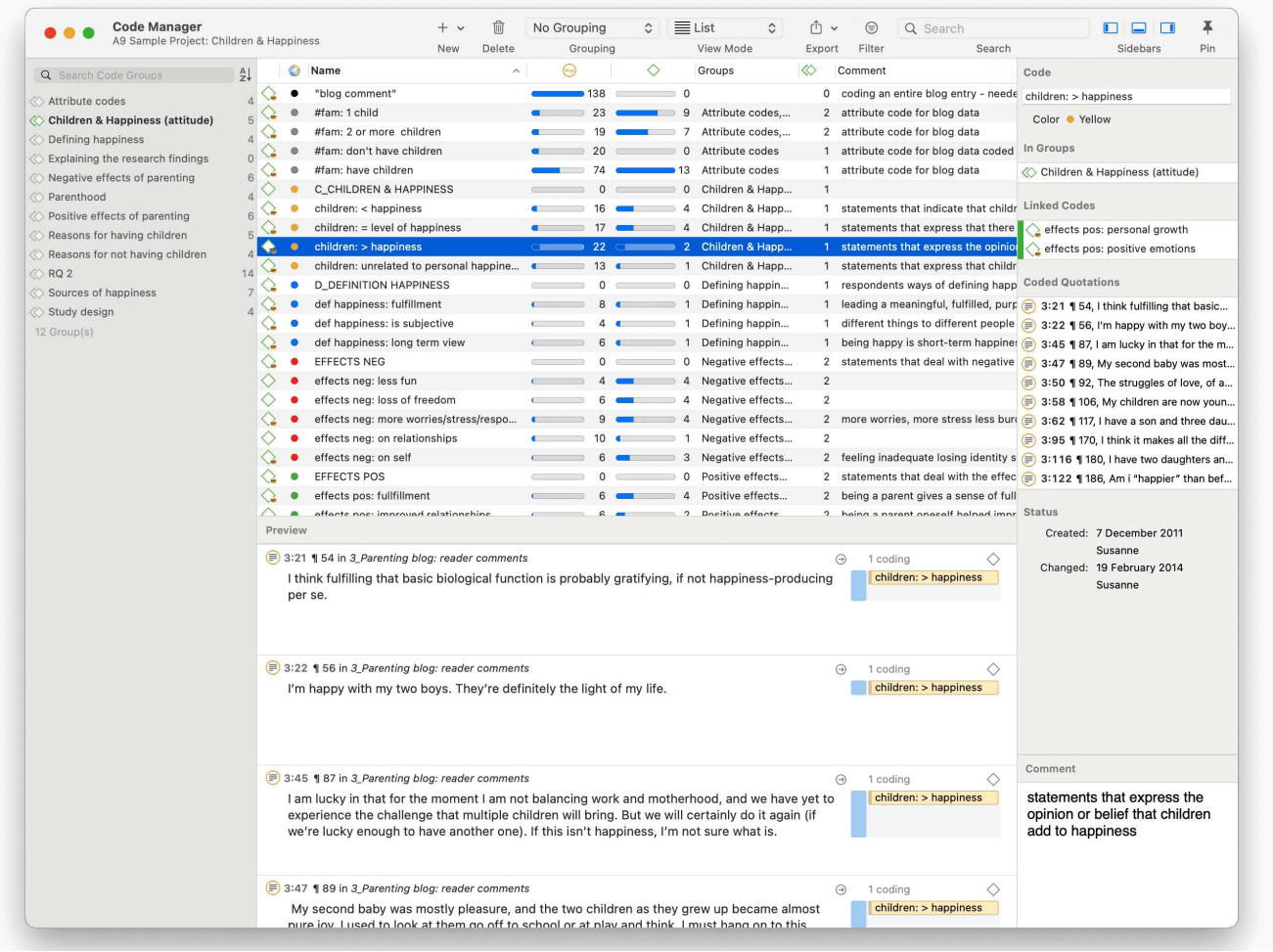
The **Link Manager for Quotations** can be launched from the **Quotation menu**.

The **Link Manager for Codes** can be launched from the **Code menu**.

All managers open as floating windows.

Each manager contains a list of the entities it manages, and some detailed information about them. At the bottom of the list, you see a preview of the selected item.

On the right-hand side, you see an **inspector**, which provides further information on a selected item. The lower part of the inspector contains the comment field where you can write, review and edit comments. You find more information about writing comments and memos here.



Another common element is the filter area on the left-hand side, which can be used to quickly access and filter the elements listed in the managers via groups or codes. They allow immediate access to fundamental activities like selecting codes, groups, creating groups and smart groups, and setting local and global filters. This allows a much more effective integration into the work flow and saves a lot of mouse movements and clicks. When selecting multiple entities, you can combine them with the operators 'AND' and 'OR'. See Simple Boolean Queries in the Quotation Manager.

All Managers offer a **plus** button to add new items, and a **bin** to delete one or more selected items.

Selecting Items in an Entity Manager

A **single click** with the left mouse button selects and highlights an item in each of the Entity Managers.

Double-clicking an item selects the entity and invokes a procedure depending on the type and state of the entity.

For **multiple selections**, you can use the standard selection techniques using the Cmd or Shift key.

To jump to a specific entry in the list, first select an item and then click the first, second and subsequent letters of a word to jump to the entry in the list. For example, suppose a number of codes begin with the two letters 'em' as in emotions typing 'em' will jump to the first of the EMotion ... codes. Every other character typed advances the focus to the next list entry unless a matching name cannot be found.

> Avoid long delays between entering characters. After a certain system-defined timeout, the next character starts a new forward search.

The Split Bar

The relative size of the side panel, list, preview and inspector can be modified by dragging the split bar between the panes. The cursor changes when the mouse moves over the split bar. You can re-size the adjacent panes by dragging the split bar to the desired position.

Context Menus

The list and text panes offer context-sensitive popup menus. The context menus contains a portion of the commands that you also find in the menus.

Searching

On top of the side-panel and entity lists, you find a search field.

Use the search field to search for either documents, quotations, codes or memos in the respective managers.

If you enter a search term, all objects that include the term somewhere will be shown in the list. For example, if you enter the term children in the code manager, all codes that include the word children somewhere in the code name will be shown.

> Remember to delete the search term if you want to see all items again.

Sorting

The Entity Managers permit comfortable sorting and filtering. With a click on a column header all items are sorted in ascending or descending order based on the entries in the selected column.

Grouping

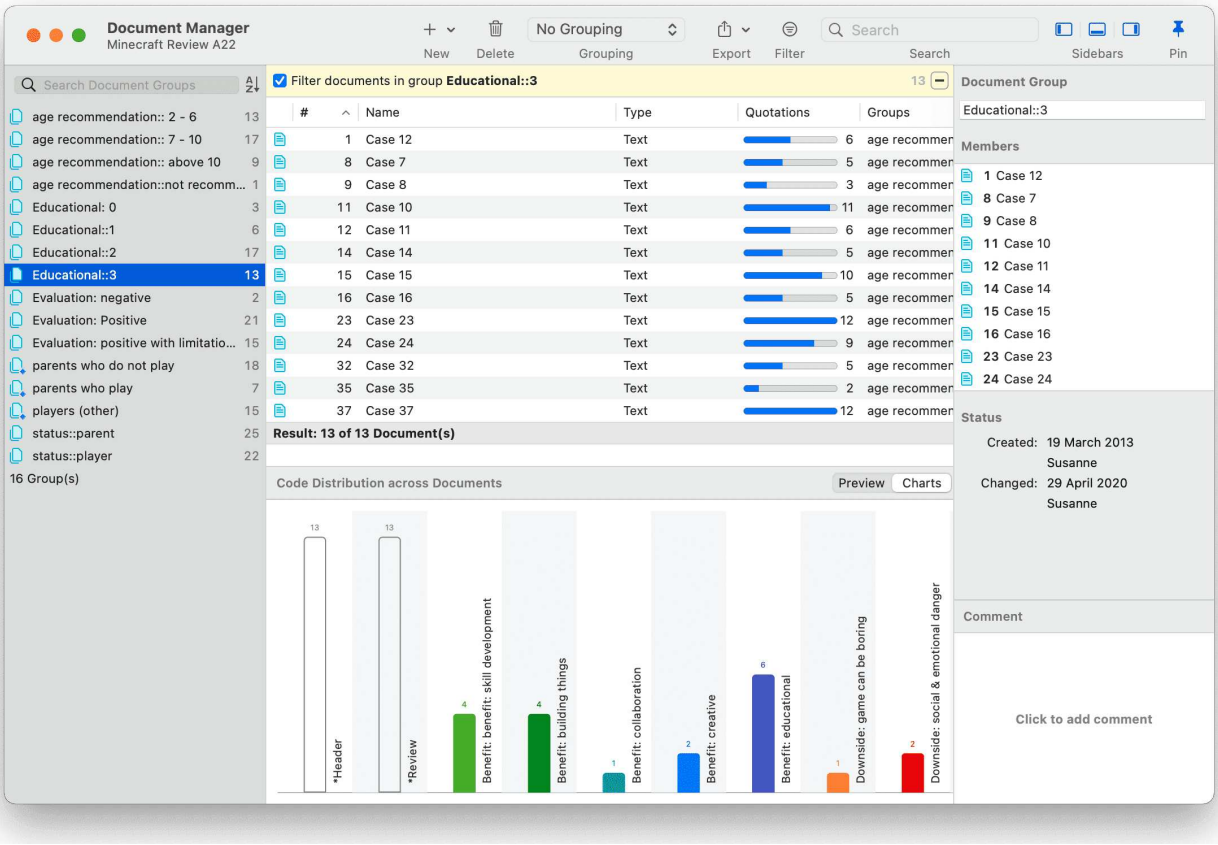
The items in each manager can be grouped by certain criteria. All items in all managers can be grouped by creating or modifying user. The codes in the code manager can for instance be grouped by groups, by documents, or by regular and smart codes. Documents can be grouped by document type, hyperlinks by relation, source, or target, and so on.

Filtering

All managers have a filter option (see filter icon in the toolbar). A filter can be as simple as filtering all commented items, or as complex as looking for all quotations coded by CodeA that co-occurs with CodeB embedded in CodeC. In the section on querying data in the Quotation Manager, it is explained how to build a query.

The Document Manager

The Document Manager helps you to organize your data, to group documents or to filter them.



Inspector: In the inspector on the right, you can change the document name, write a comment for the document (Working With Comments And Memos), and see which document groups the document is assigned to. Further, you can review the creation and modification date.

ID: The first column shows the blue document icon, and the document number. The document number is a consecutive number given to the document by ATLAS.ti when it is added to a project.

Name: The default name is the file name of the original source file that you added to the ATLAS.ti project. You can rename each document if you prefer a different name.

Location: Here you see whether a document is stored in the ATLAS.ti library or whether ATLAS.ti opens it from a linked location. For further information see Adding Documents.

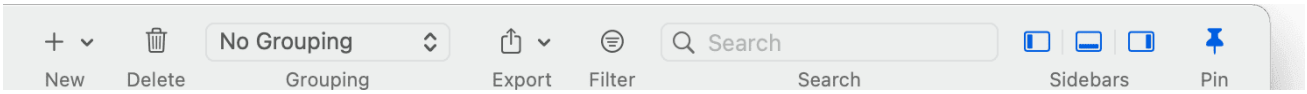
Below the document list you see a Code Distribution across Documents. You can switch between seeing a document preview or the bar charts.

Filter

Click on one or more document groups in the filter area on the left to set a local filter. This means only the items in the manager are filtered.

If you want to filter the entire project, right-click on a document group to set a global filter. See Applying Global Filters For Data Analysis.

Document Manager Toolbar



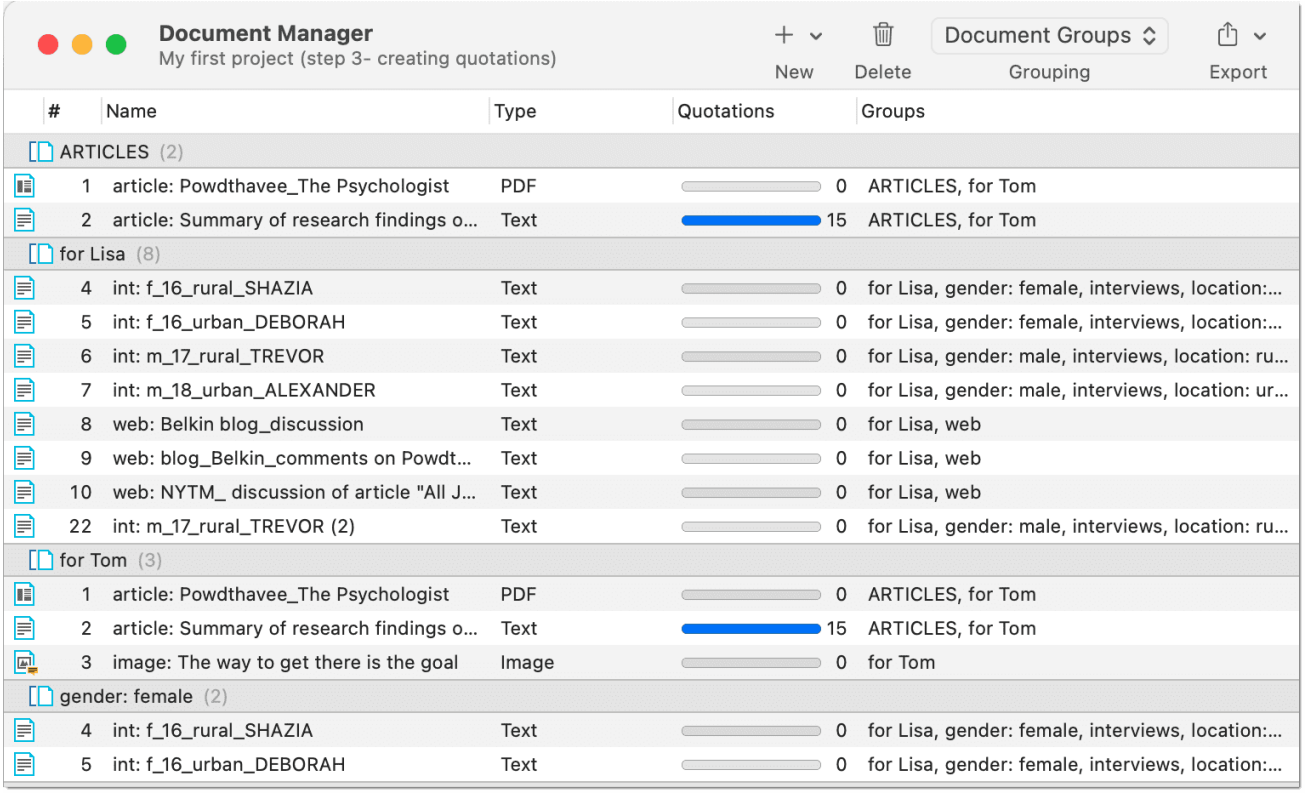
From left to right:

New: Add a new document to your project. See Adding Documents.

Delete removes selected document(s) from a project. This is a permanent deletion. It also means that all coding done on the document(s) is deleted. You can revert the action using UnDo, but only within the currently active session.

Grouping: You can view the list of documents in different ways. You can group them by codes, code groups, document groups, document type or creating / modifying user:

Below you see a Document Manager where the document list is grouped by document groups:



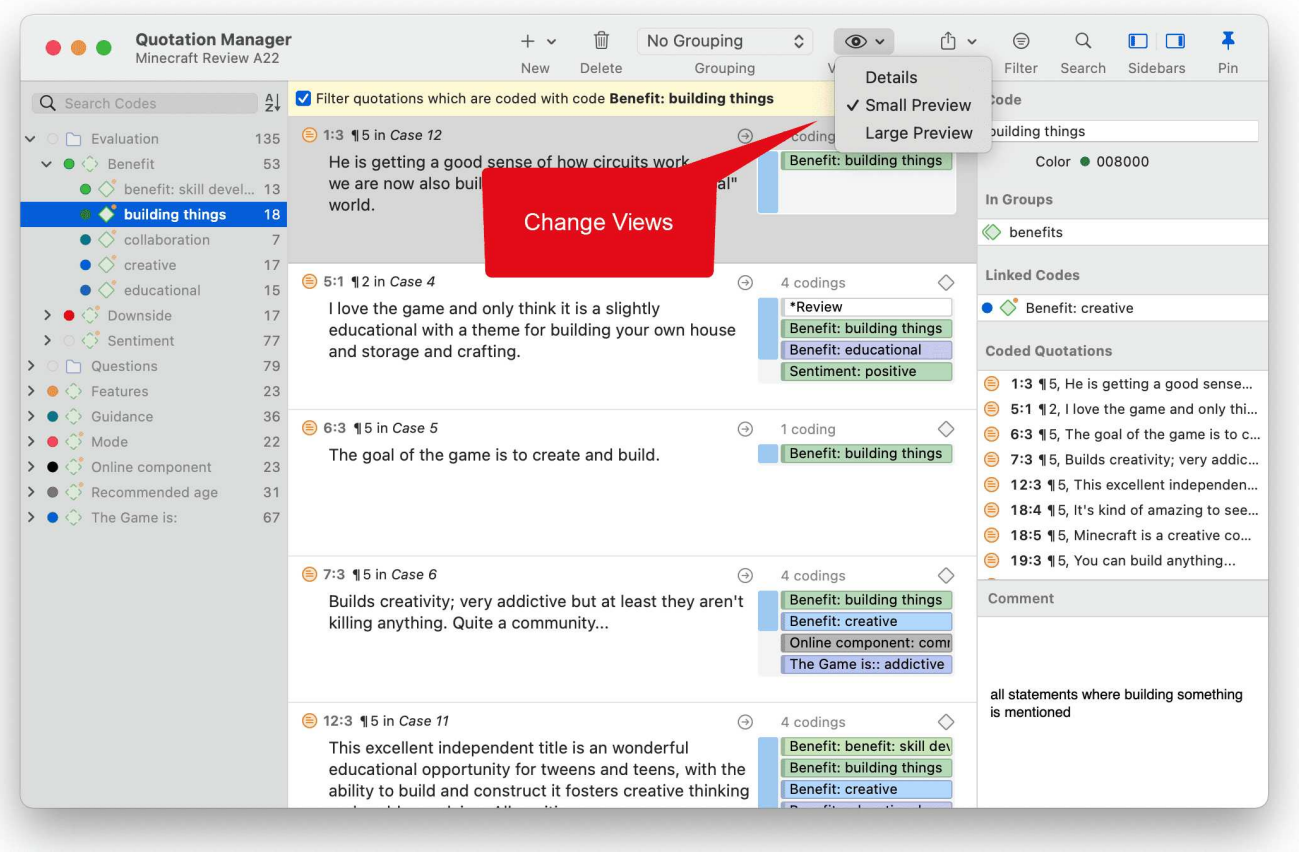
Export: You have the option to export a spreadsheet for Numbers or Excel, or a report as text file (Word, PDF). The text reports are customizable. See Creating Reports. Via the spreadsheet option you get a WYSIWYG report of the manager. You can exclude columns, by clicking on any of the column headers and select what should be included in the report.

Filter: Via the filter, you can query your documents in various ways. For further detail see Available Operators for Querying. For further information on how to build queries, see Querying Data in the Quotation Manager.

Export: Reports can be created as text file (Word, PDF), as spreadsheet, or image. See Creating Reports.

Pin: If you click on the 'pin', then the windows stays on top. If selected, the pin turns blue.

Quotation Manager



The Quotation Manager can be used for retrieving and reviewing data by codes, creating smart codes, writing comments, creating reports, or opening networks. When working with multimedia and geo data, it is useful to rename quotation names as titles for audio- or video segments or for location names for geo data. See Working with Quotations.

Quotation Reference

ID: The ID consist of two numbers best explained by an example: An ID 3:10 means that the quotation comes from document 3, and it is the 10th quotation that was created in this document. Quotations are numbered in chronological and not in sequential order.

Reference: The reference indicates the location of the quotation in the document, e.g., paragraph 12 - 13. For audio and video documents, the reference gives the start position in h:m:s. For geo quotations, the geo-location is provided.

Adding Quotation Names

Name: The name field initially is empty. You can enter a name for each quotation, e.g., to enter a title, a description for an image quotation, or a geo-location. See also Working with Quotations.

Selection Behaviour

A single-click selects a quotation. If you have written a comment for the selected quotation, it is displayed in the at the bottom of the window.

A double-click on a quotation loads its document (unless already loaded) and displays its content in context.

Multiple Selection: You can select more than one quotation at a time, either to delete them, to attach codes, to open a network on them, or to create output.

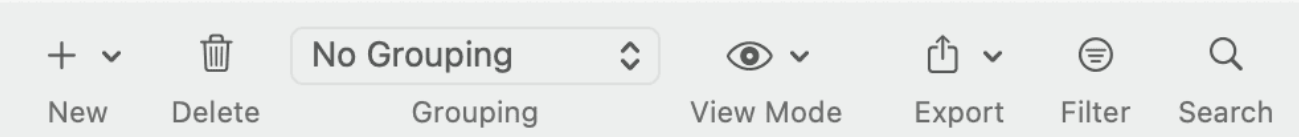
Drag & Drop

By dragging one or more quotations onto other quotations, you create hyperlinks. See Working with Hyperlinks for further information.

Filter

Click on one or more codes in the filter area on the left to view only quotations linked to the selected code(s).

Quotation Manager Toolbar



New: Add a new document to your project. See Adding Documents.

Delete: Removes selected quotations(s) from a project. This is a permanent deletion. You can revert the action using UnDo, but only within the currently active session.

Grouping: You can view the list of quotations in different ways. You can group them by codes, code groups, documents, document groups, document type or creating / modifying user.

View Mode: You can switch between Details, Small Preview and Large Preview.

Export: You have the option to export a spreadsheet for Numbers or Excel, or a report as text file (Word, PDF). The text reports are customizable. See Creating Reports. Via the spreadsheet option you get a WYSIWYG report of the manager. You can exclude columns, by clicking on any of the column headers and select what should be included in the report.

Filter: Via the filter, you can query your data. You can search quotations based on codes, and their location in documents or document groups. Further, you can also search for text within quotations

and combine this with a code query. For further detail see Querying Data in the Quotation Manager.

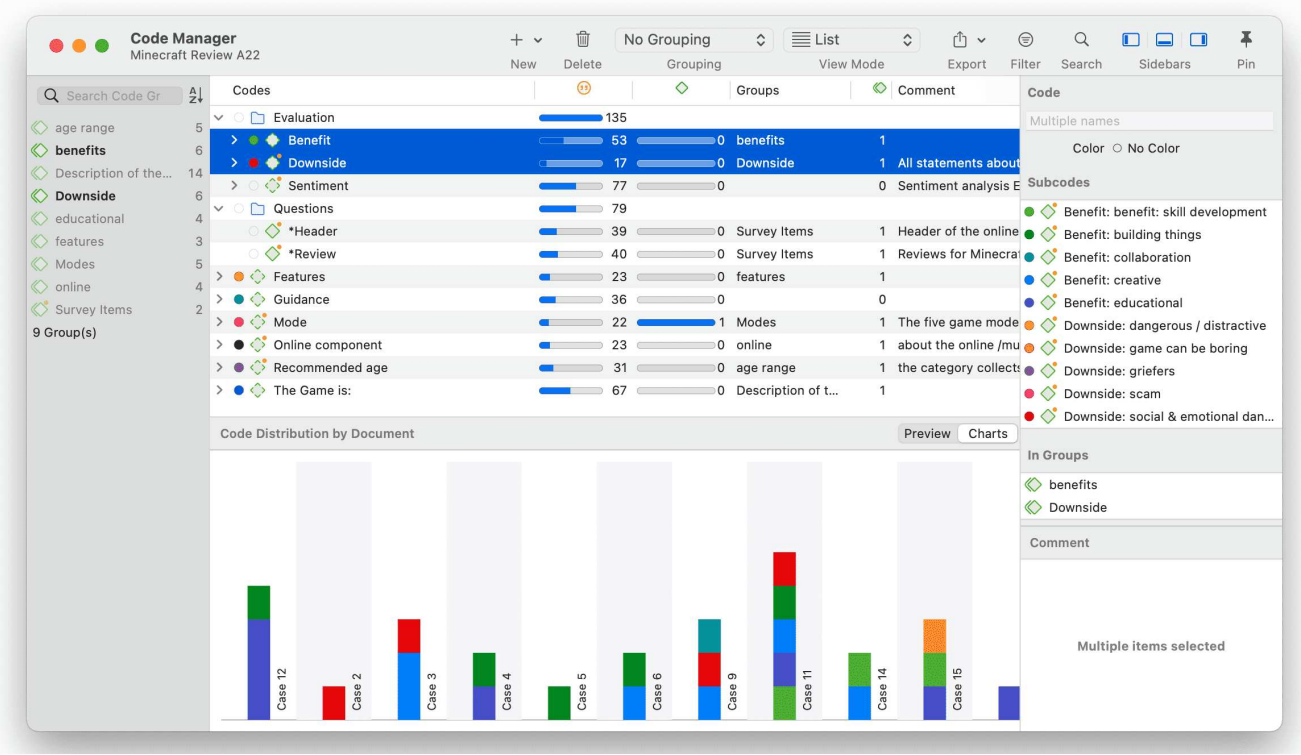
Search: Enter a few letters into the search field and ATLAS.ti will search for all quotations that contain the entered letter sequence.

Pin: If you click on the 'pin', the windows stays on top. If selected, the pin turns blue.

Code Manager

The Code Manager is frequently used to:

- create and modify codes
- to code data segments via drag & drop
- to set code colors
- to retrieve coded data segments
- to organize them in code groups
- to merge and to split codes
- to filter them
- to review them in networks
- to review its content using word clouds and word lists
- to create reports.



In the bottom pane below the code list, you can either see a quotation preview for a selected code, or a chart. For more information about the chart, see Code Distribution Over Documents.

> To change between comment and diagram view, select either the button Preview or Charts.

Good to know

Groundedness: Code frequency or groundedness. It shows how many quotations are linked to a code.

Density: Number of linkages to other codes. See Linking Nodes.

Colors: If you add code colors, a colored circle is displayed in front of the code icon and name. Code colors also have an effect on the display of code nodes in networks. See Working with Networks.

> If you do not want to see all columns, right-click on a column header and deselect, what you do not want to see.

Selection behaviour

A double click on a code opens the list of linked quotations in the Quotation Reader You can browse through the list of quotations and view them highlighted in the context of its document. If there is only one quotation linked to a code, it will immediately be highlighted in the context of its document.

Single-click: Selects a code. If you have written a definition for the selected code, it is displayed in the comment pane in the inspector on the right. Once selected, the code can be used for drag & drop coding, or you can add it to a code group via drag & drop. **Multiple Selection:** You can select more than one code at a time by holding down the Ctrl or Shift key. This is useful to:

- delete multiple codes
- to code a data segment with multiple codes
- to open a network that includes all selected codes
- to create reports based on the selected codes
- to assign multiple codes to a code group or to remove them from a group
- to create a new code group based on the selected codes

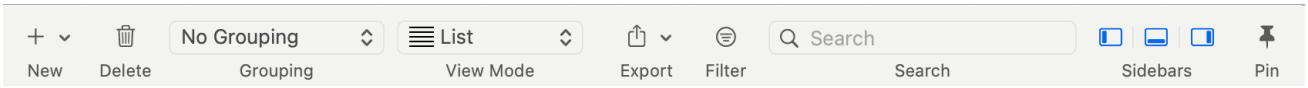
Drag & Drop

You can use the Code Manager as a convenient tool for coding by dragging codes onto a highlighted piece of data. If you drag codes onto another code within the same list pane, code-links will be created. If you drag a code on top of another code in the margin area, it will be replaced.

Filter

Click on one or more code groups in the filter area on the left to set a local filter. This means only the items in the manager are filtered. If you want to filter your entire project, then you need to set a global filter. See Applying Global Filters for Data Analysis.

Code Manager Toolbar



From left to right: **New:** Add a new code to your project.

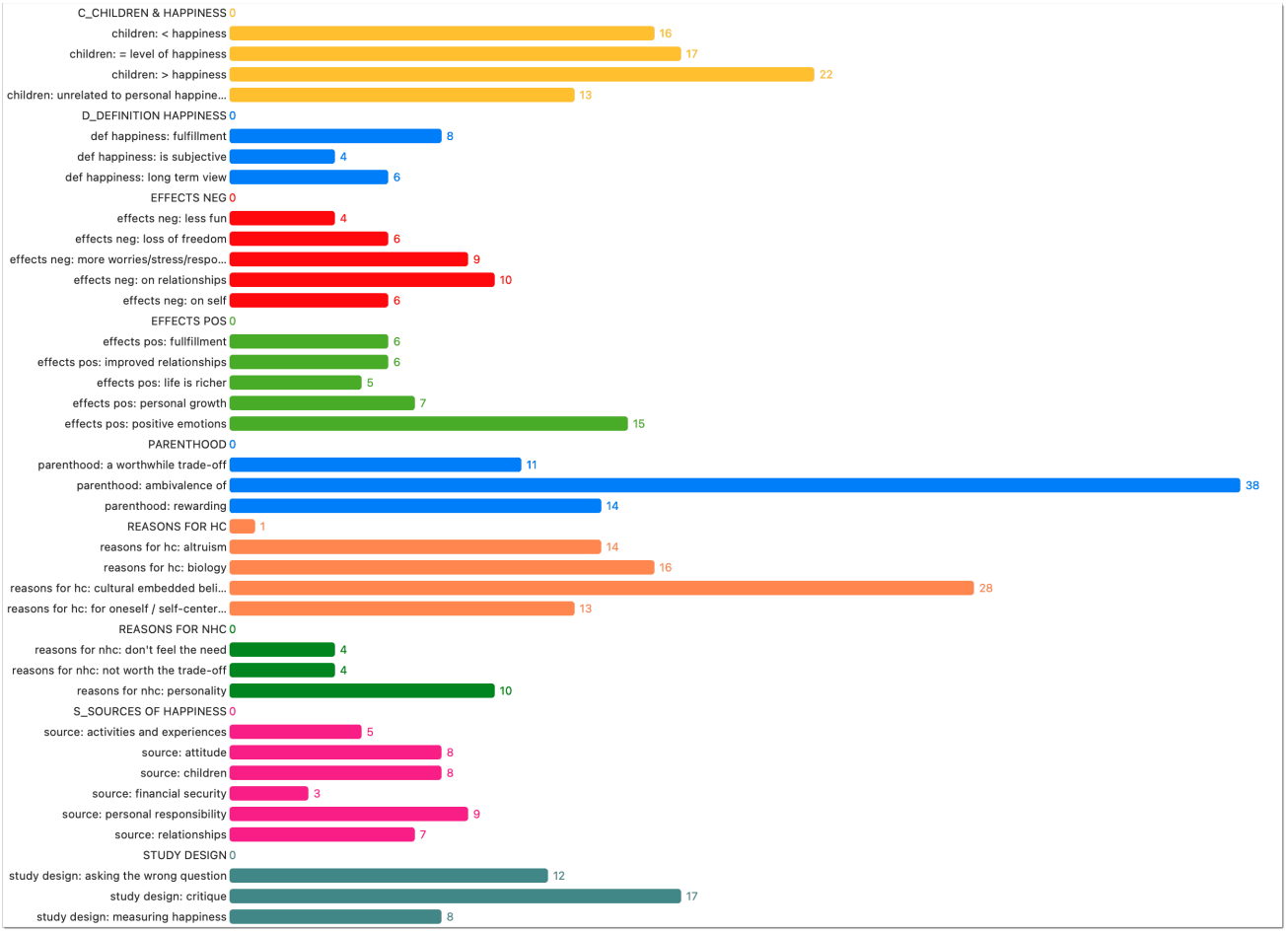
Delete removes selected code(s) from a project. This is a permanent deletion. You can revert the action using UnDo, but only within the currently active session.

Grouping: You can view the list of codes in different ways. You can group them by code groups, smart codes, documents, document groups, or creating / modifying user.

View Mode: You can view codes in list view (default), as cloud or in form of a bar chart:

Code List as Bar Chart

> Select the **Bar Chart** to visualize your code list in form of a bar chart.

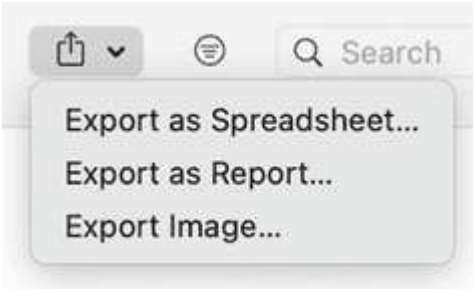


The codes in the bar chart view also have a context menu. Thus, also from here, you can start the same actions as in the standard view.

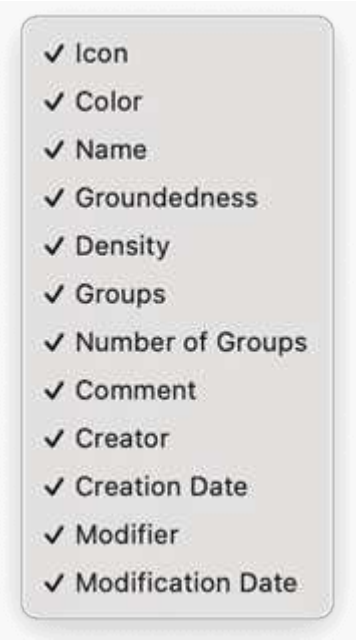
> Select the **Cloud** option to visualize your code list in form of a word cloud:

If you right-click on a code, the same context menu opens as in 'List' view. Thus, in the cloud view you can start the same actions as in the regular view. You can for instance rename codes, set a color, split codes, or open a network on one or multiple codes.

Export



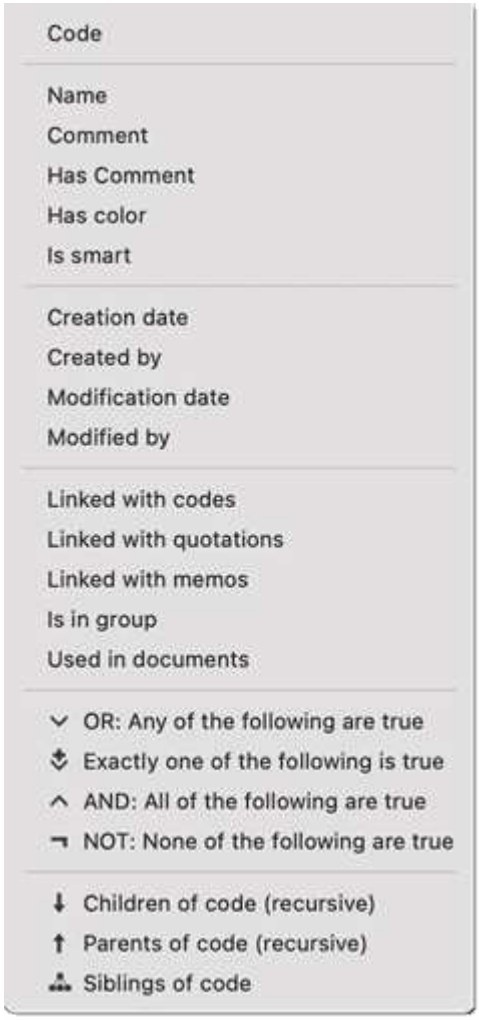
- You can export the code list as **spreadsheet** for Numbers or Excel. When exporting a spreadsheet, you get a WYSIWYG report of the manager. You can exclude columns, by clicking on any of the column headers and select what should be included in the report.



- Another option is to create a customizable report as **text** file (see Creating Reports).
- The cloud and bar chart view can be exported as **image** in png format.

Filter

Via the filter, you can query your codes. For instance, you can search for codes created by a particular user, you can search for comments with comments or for codes that are linked with other codes. For further detail on how to build a query, see Querying Data in the Quotation Manager.



Search

Enter a few letters into the search field and ATLAS.ti will search for all codes with this letter sequence.

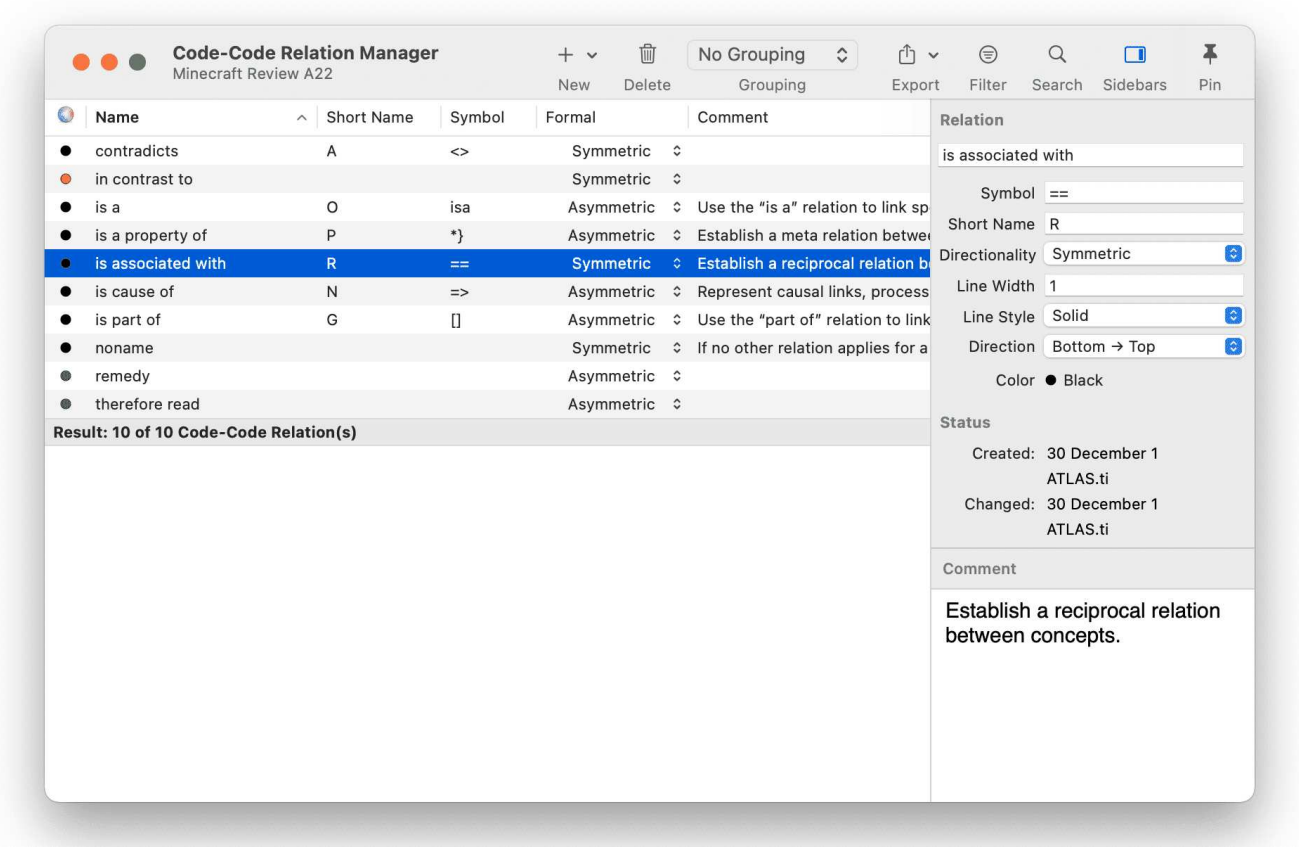
Pin

If you click on the 'pin', the windows stays on top. If selected, the pin turns blue.

Relation Manager

The Relation Manager is used to review the properties of existing relations, to edit existing relations, or to create new relations. You can switch between relations for code-code links and relations for hyperlinks. As the column information and the ribbon options are the same for both, below you find only one description. For further information see Working With Networks.

> You can access the Relation Manager for Codes via the Code menu, and the Relation Manager for Hyperlinks via the Quotation Menu.



Short Name: Short name as an alternative to the full name. You can either display full names, short names or the symbolic name for all relations in a network.

Symbol: Symbolic name as an alternative to the full name. You can either display full names, short names or the symbolic name for all relations in a network.

Formal: The formal property of a relation: symmetric, asymmetric, or transitive. See About Relations.

Comment: Short description of the relation type.

For further information see Creating New Relations

Supported File Formats

In principle, most textual, graphical, and multimedia formats are supported by ATLAS.ti. For some formats, their suitability depends on the state of your Windows system. Before deciding to use an exotic data format, you should check if this format is available and if it is sufficiently supported by your Windows system.

Textual Documents

The following file formats are supported:

Format	File Type
MS Word	.doc; .docx; .rtf
Open Office	.odt
HyperText Markup Language	.htm; .html
Plain text	.txt
other	.ooxml

Text documents can be edited in ATLAS.ti. This is useful to correct transcription errors, to change formatting, or to add missing information. When adding an empty text document to an ATLAS.ti project, you can also transcribe your data in ATLAS.ti. We however recommend using a dedicated transcription tool or use automated transcriptions. You can add transcripts with timestamps and synchronize them with the original audio or video file. For this you use Multimedia Transcripts.

Transcripts

ATLAS.ti supports virtually all transcription apps and services, and also allows you to transcribe within ATLAS.ti, or import transcripts that you wrote yourself. See Transcription for more details.

PDF files (Text and Graphic)

PDF files are perfect if you need the original layout. When PDF was invented, its goal was to preserve the same layout for onscreen display and in print.

If the PDF file has annotations, they are displayed in ATLAS.ti. However, they cannot be edited.

When preparing PDFs, you need to pay attention that you prepare a text PDF file and not a graphic PDF. If you do the latter, then ATLAS.ti treats it as a graphic file, and you cannot search it or retrieve text.

When scanning a text from paper, you need to use character recognition software (OCR, frequently provided with your scanner) in order to create a text PDF file. Another option is to apply character recognition in your PDF reader/writer software.

When you retrieve text from a coded PDF segment the output will be rich text. Thus, you may lose the original layout. This is due to the nature of PDF as mentioned above. It is a layout format and not meant for text processing.

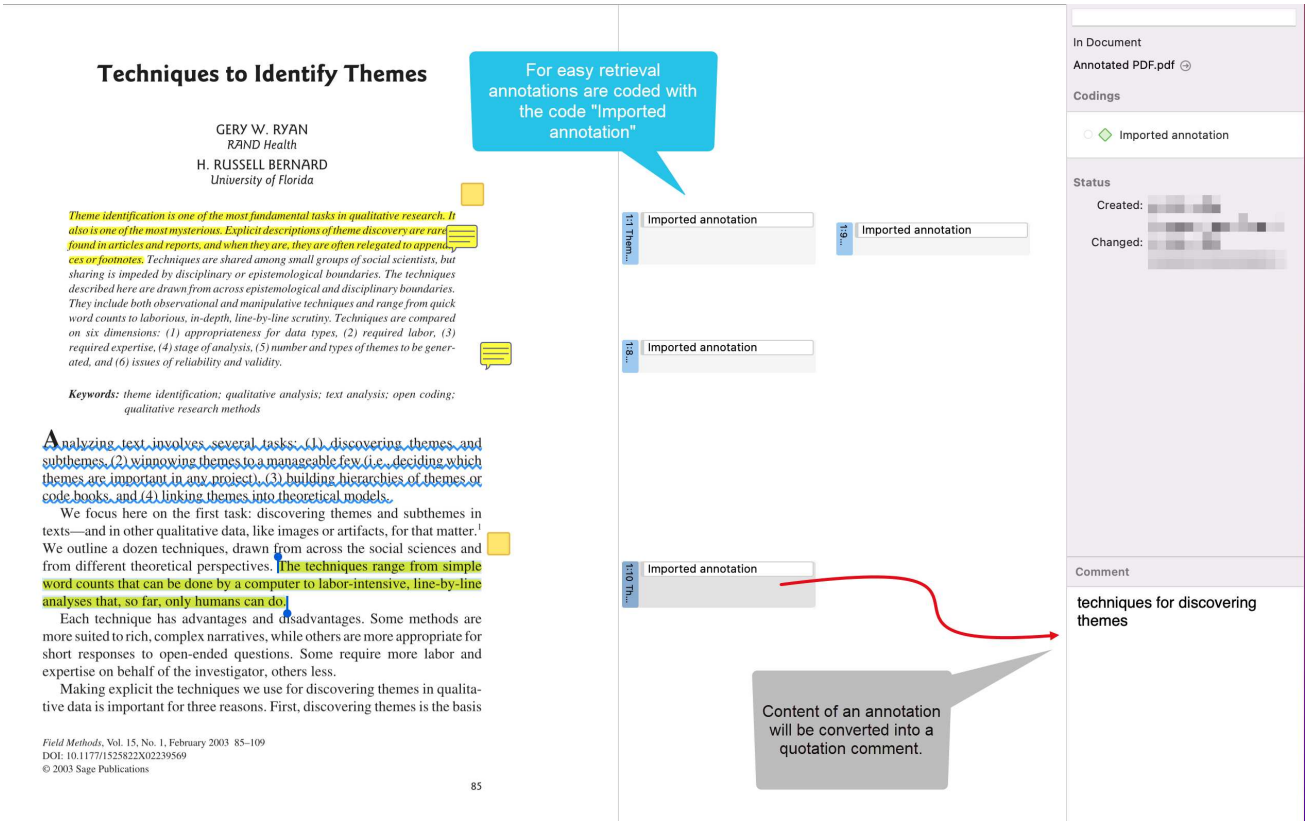
PDF with annotations / Word files with comments

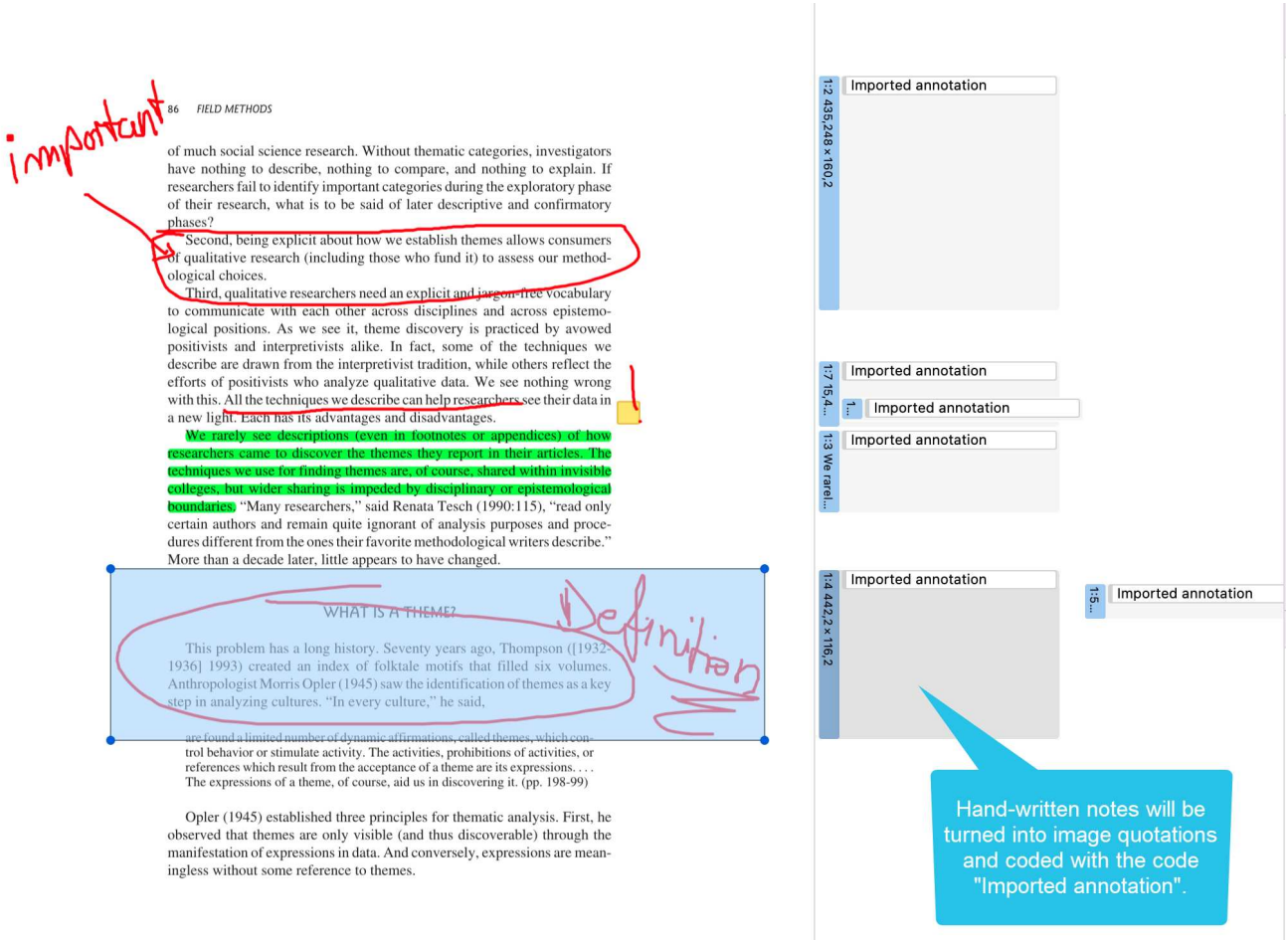
If you have made annotations in Word or PDF files, ATLAS.ti will turn the highlighted area into a quotation. The text of the annotation will be added as a comment to the quotation.

If you added handwritten drawings or comments, those will be imported as image quotations (in ATLAS.ti Windows currently only supported for PDF documents).

- Imported comments from Word will be coded with the code **Imported comments**.
- Imported comments from PDF documents will be coded with the code **Imported annotations**.

PDF documents with annotations imported in ATLAS.ti



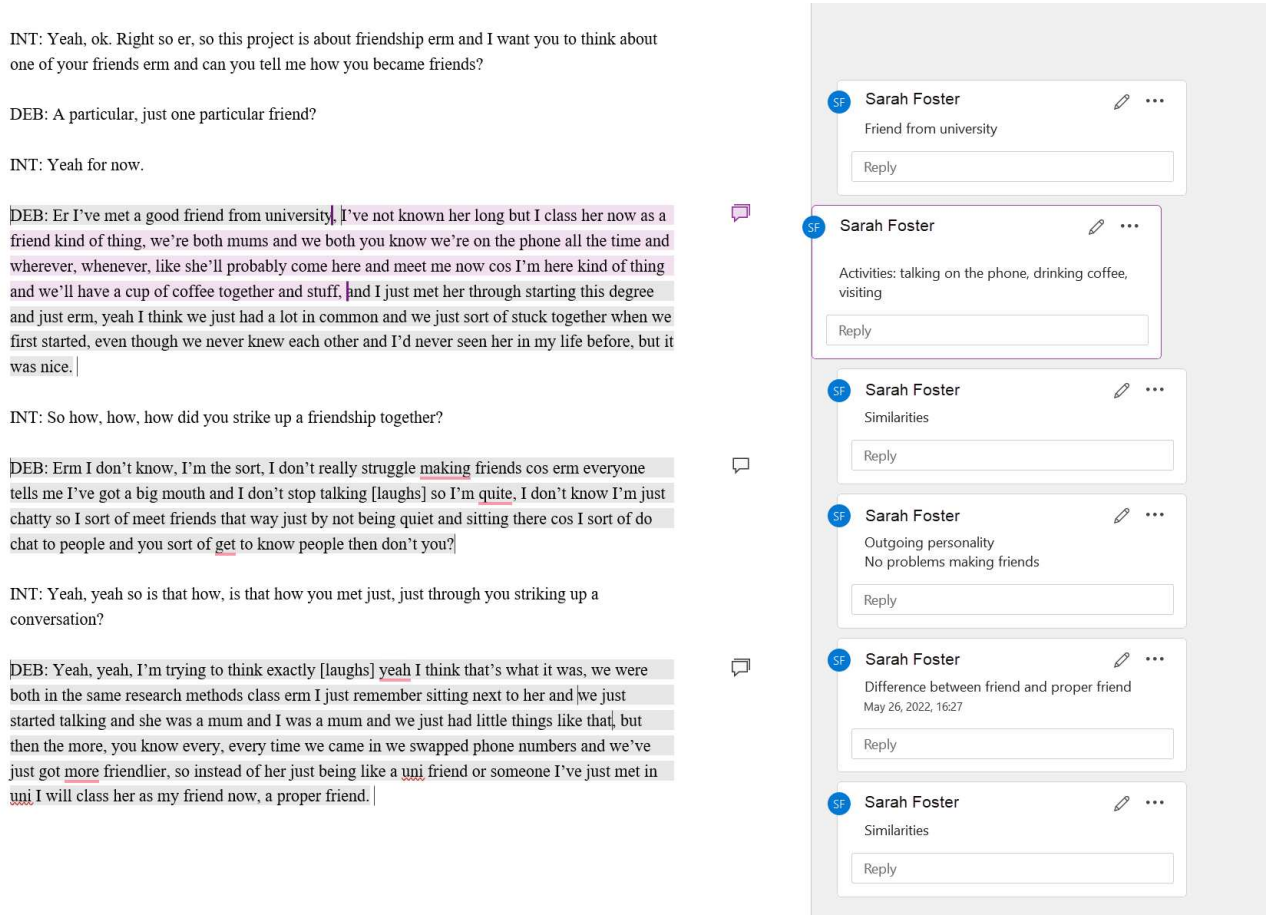


Word document with comments

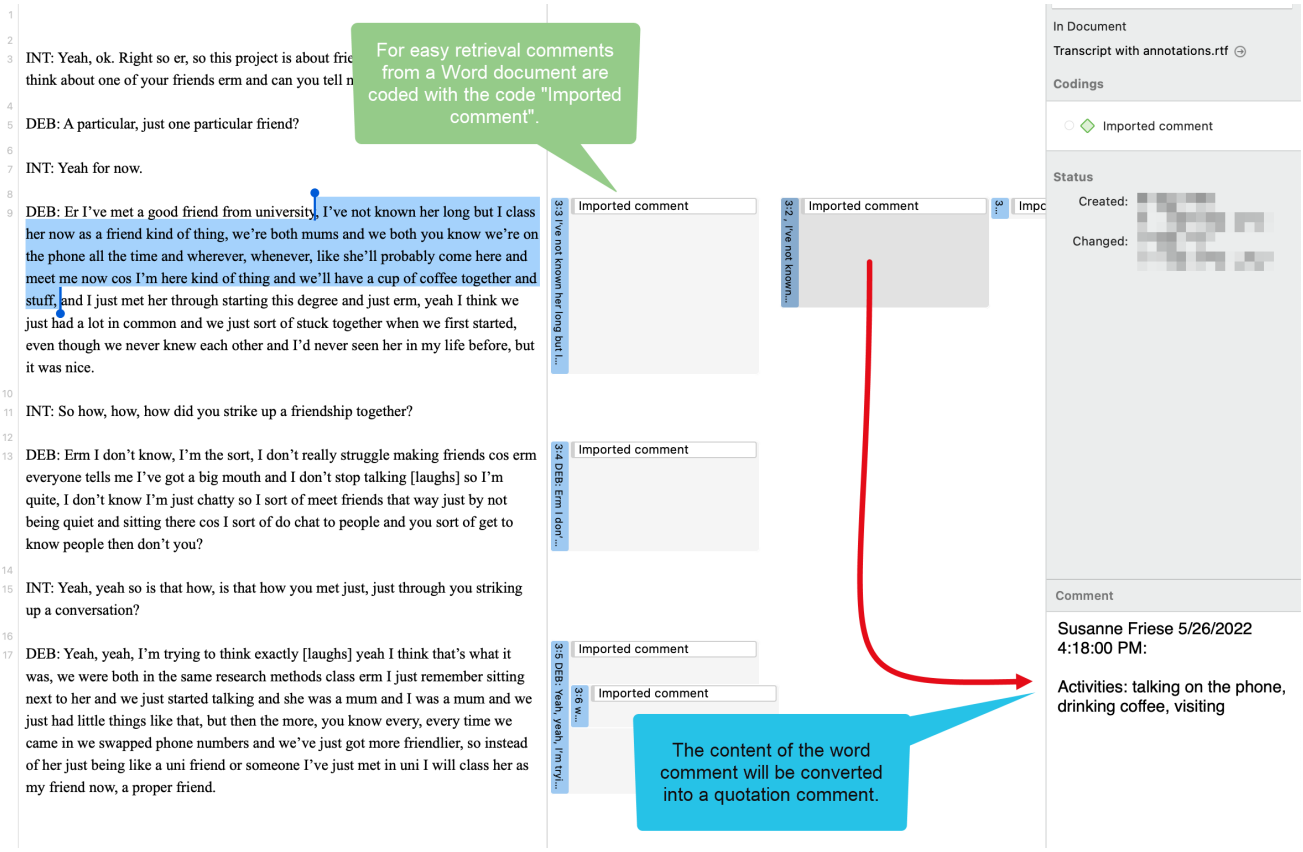
Perhaps you first read a transcript in Word and write initial coding ideas as comments in the margin. If you add this transcript to ATLAS.ti, all commented segments will already be marked as quotations.

If you select a quotation, you can read the comment you have written in the inspector on the right-hand side. Based on your comments you can begin with your coding work. Go through each quotation, open the coding tool and create new codes, or apply existing ones.

Another option is to prepare an Excel table based on the comments you wrote and import it as your initial code list. See Immporting a codebook.



In the image below you see, how it looks like when this document is imported in ATLAS.ti:



PDF files (eBooks, PowerPoint, Spreadsheets, Visio, Draw)

The following file types will be transformed into PDF files, when adding them to an ATLAS.ti project:

- Ebooks (.mobi)
- Excel (.xls and .xlsx) and Libre Office Calc (.ods) spreadsheets
- Powerpoint (.ppt and .pptx)
- Libre Office Impress (.odp) presentations
- Visio (.vsd and .vsdx) and Libre Office Draw (.odg) documents

Images

Supported graphic file formats are: bmp, gif, jpeg, jpg, png, tif and tiff.

Size recommendation: Digital cameras and scanners often create images with a resolution that significantly exceeds the resolution of your screen. When preparing a graphic file for use with ATLAS.ti, use image-processing software to reduce the size so that the graphics are comfortably displayed on your computer screen. ATLAS.ti does resize the images if they are too big. But this requires additional computer resources and unnecessarily uses space on your computer hard disk.

To resize and image manually, you can use the zoom function via the mouse wheel or the zoom button in ATLAS.ti.

Audio- and Video Documents

Supported audio file formats are: aac, m4a, mp3, mp4. Supported video file formats are: avi, m4v, mov, mp4.

For audio files, our recommendation is to use *.mp3 files with AAC audio, and for video files *.mp4 file with AAC audio and H.264 video. These can be played both in the Windows and in the Mac version. As video files can be quite sizable, we recommend linking video files to an ATLAS.ti projects rather than to import them. See Adding Documents for further information.

Geo Documents

When you want to work with Geo data, you only need to add a new Geo Document to your ATLAS.ti project. This opens Apple Maps. To navigate to a specific region or location on the map, enter an address or location name in the search field. For more information, see Working With Geo Docs.

Social Network Comments

ATLAS.ti imports Excel files generated by exportcomments.com. You can use the service for free to export up to 100 comments per link. For a small fee, you can use the service for three days to download the data you need. This also allows you to export nested comments.

Supported social networks are:

- Facebook
- Twitter
- Instagram
- YouTube
- TikTok
- VK
- Twitch
- Discord

For further information see Importing Social Network Data.

Survey Data

The survey import option allows you to import data via an Excel spreadsheet (.xls or .xlsx files). Its main purpose is to support the analysis of open-ended questions. However, this option can also be used for other case-based data that can easily be prepared in form of an Excel table.

In addition to the answers to open-ended questions, data attributes (variables) can also be imported. These will be turned into document groups in ATLAS.ti. For more information, see Working With Survey Data.

Reference Manager Data

In order to support doing a **Literature Review** with ATLAS.ti, you can import articles from reference managers. The requirement is that you are using a reference manager that can export data as Endnote XML file like Endnote, Mendeley, Zotero, or Reference Manager.

If your reference manager cannot export data in Endnote xml format, you can export data in RIS or BIB format and use the free version of Mendeley or Zotero to produce the xml output for ATLAS.ti.

See Working With Reference Manager Data.

Adding Documents

Video Tutorial: Creating a project and adding data.

What happens when you add documents to a project

All documents that you add to a project are copied, and the copies become internal ATLAS.ti files. This means, strictly speaking, that ATLAS.ti no longer needs the original files. However, we strongly recommend that you keep a backup copy of your original source files.

What happens when you add documents to a project

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As audio and video files can be quite sizable, you have the option to create an external reference to the files. This means the multimedia documents remain at their original location and are accessed from there. Preferably, these files should not be moved to a different location. If the files need to be moved, you need to re-link the files to your project. ATLAS.ti will alert you, if there is an issue, and a file can no longer be accessed.

Important for team projects

When you work in a team and want to work on the same documents, it is important that one person is setting up the project and adds all documents and codes that should be shared. The reason for this is that all **all entities are stamped with a unique ID when they are created.** This ID allows ATLAS.ti to detect if entities are the same when merging projects.

If the same documents (or codes) are added on different computers to different projects, then they all have different IDs. Rather than being merged when you merge all projects, they are added. Thus, the merged project contains duplicates. You can merge duplicated codes yourself, but you cannot merge duplicated documents! If this happens, you need to manually transfer all coding that has been done from the duplicated documents. See Team Work for further information.

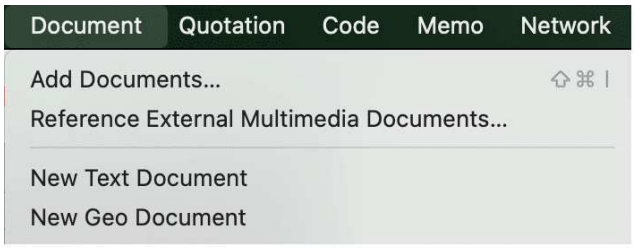
How to Add Documents

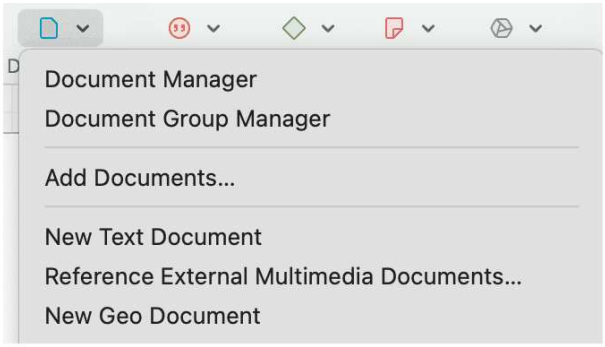
> From the main menu, select **Document > Add Documents.** Another option is to open the drop-down menu of the document button in the toolbar, or you can just drag files from Finder onto the left sidebar in ATLAS.ti.

> If you want to link a video file, select the option Reference External Multimedia Documents. For further information see Adding Multimedia Data.

> If you want to write your own text, e.g. in order to transcribe data, select the option New Text Document.

> You can of course also import iranscripts; see Importing Transcripts. Or prepare your own transcripts.





All added or linked documents are numbered consecutively starting with 1, 2, 3 and so on.

> The default sort order is by name in alphabetical order. The document order cannot be changed in the Mac version.

Size Restrictions

Theoretically, size restrictions do not play a major role due to the way ATLAS.ti handles documents. However, you should bear in mind that your computer's processing speed and storage capacity may affect the performance.

Excessively large documents can be uncomfortable to work with, even when you have an excellently equipped computer.

For textual documents, the number and size of embedded objects may cause extraordinarily long load times. There is a high likelihood that if a textual document loads slowly in ATLAS.ti, it would also load slowly in Word or WordPad.

For very long texts or multimedia files, scrolling to exact positions can be cumbersome.

Please keep those issues in mind when preparing your files.

A Word about "Big Data"

Please keep in mind that the focus of ATLAS.ti is to support qualitative data analysis and to a lesser extent the analysis of qualitative data.

Big data is a buzz word nowadays, and a lot of big data often comes as text or images, hence could be considered qualitative. ATLAS.ti, however, is not suited for true big data analysis, which is not the same as qualitative data analysis.

As point of orientation, coding can be supported using the auto coding feature. However, you still need to read and correct the coding, and most coding in ATLAS.ti is done while the researcher reads the data and creates or selects and applies a code that fits.

A project is too large if you have so much data that you need to rely on a machine to do all the coding for you, and you cannot read what has been coded yourself. While we are adding natural language processing tools to ATLAS.ti as well as continuously improving performance for large projects, these tools are designed to help you as a researcher, not replace the human. While it may sometimes seem otherwise, computers still can't think.

Transcription

You can prepare your own transcripts in ATLAS.ti, or import transcripts that have been created elsewhere.

ATLAS.ti's allows you to incorporate transcripts from virtually any transcript service or app. Whether you're using a commercial transcription service, doing manual translation yourself, or employing an automated speech-to-text system, ATLAS.ti can import the data.

Supported formats are VTT, SRT, TXT, DOCX, and RTF.

> ATLAS.ti can automatically detect and code speakers in VTT files that include speaker information.

Some of the services and apps that can export compatible formats:

- AmberScript
- Descript
- Easytranscript
- ELAN
- eStream
- Express Scribe
- f4 & f5 transcript
- Go Transcribe
- Happy Scribe
- HyperTRANSCRIBE
- Inqscribe
- Microsoft Teams
- oTranscribe
- Otter.ai
- Panopto
- Rev
- Scribie
- Simon Says
- Sonix
- Speechmatics
- Spoken ONLINE
- Temi
- Transana
- Transcribe by Wreally
- TranscribeMe!
- Transcriber Pro
- Transcriva
- Transkripto
- Trint
- Uitgetypt.nl

- Vimeo
- Vocalmatic
- Voicedocs
- WebEx
- YouTube
- Zoom

Supported timestamps for TXT, RTF, and DOCX transcripts

When writing your own transcripts, you can choose to use specialized transcription software (recommended), write the transcript inside ATLAS.ti, or even simply write the software in the text editor or word processor of your choice.

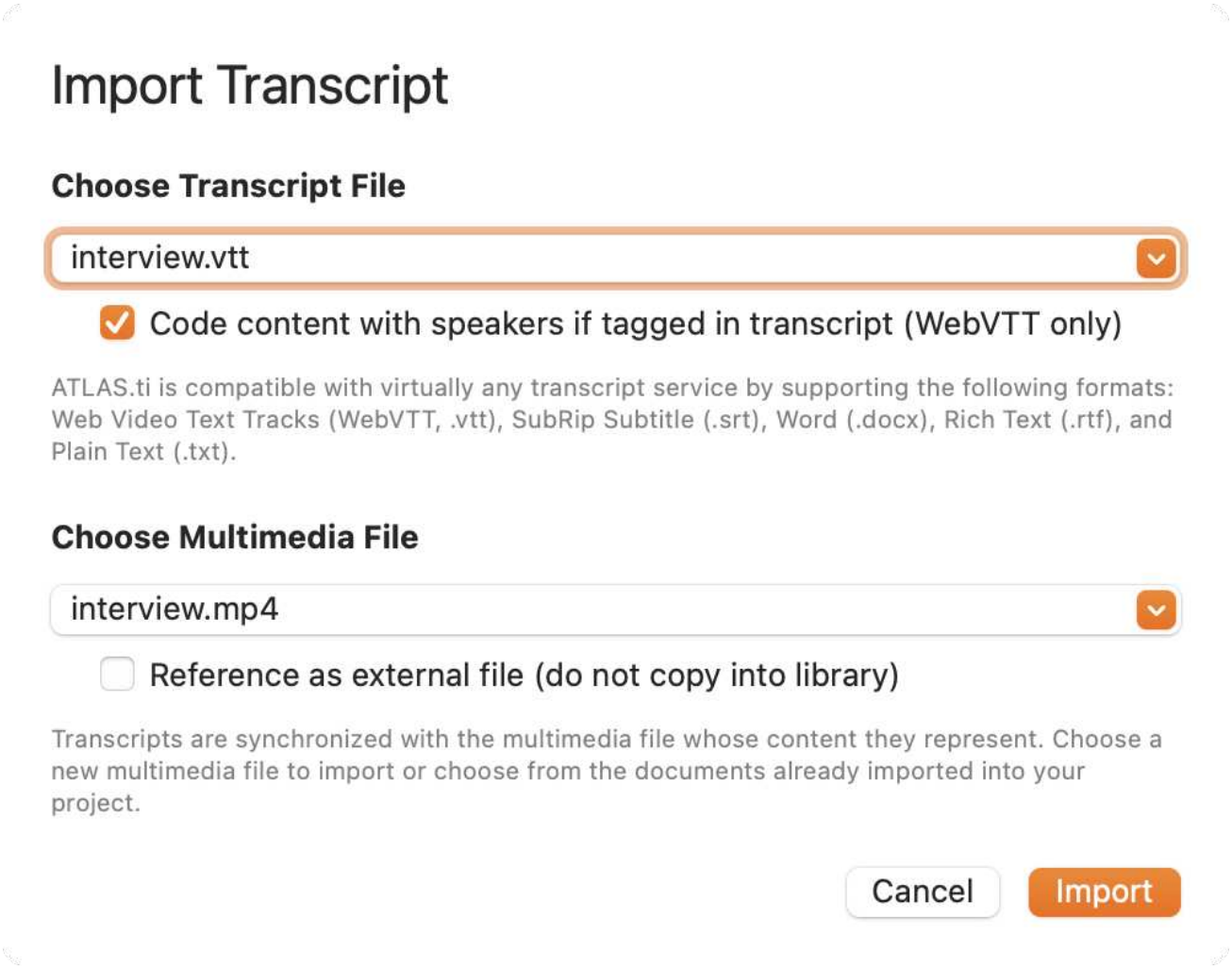
When hand-writing your transcripts, please choose one of the below formats to ensure maximum compatibility with ATLAS.ti.

Format	Exported by
#hh:mm:ss-x#	Easytranscript, f4 & f5transcript
[hh:mm:ss]	Transcribe
[hh:mm:ss.xx]	HyperTRANSCRIBE, Inqscribe, Transcriva
[hh:mm:ss.xxx]	HyperTRANSCRIBE, Inqscribe, Transcriva
(h:mm:ss.xx)	Transana
hh:mm:ss	Transcriber Pro

Importing Transcripts

A multimedia transcript in ATLAS.ti consists of two documents: an audio or video file plus an associated transcript.

In the Toolbar, click on Documents, then Import Transcript....



Click the top dropdown to choose the file that contains the transcribed text.

Some VTT files contain speaker information. Leave the checkbox "Code content with speakers" checked, and ATLAS.ti will automatically insert speaker names into your text file, and code spoken passages with the appropriate speaker name, if the file contained speaker information.

Click the bottom dropdown to choose the audio or video file. You can either import a file off your computer or associate a multimedia document that is already part of your project.

If you have an audio or video file with the same name as the transcript in the same folder, ATLAS.ti will have automatically filled out the bottom dropdown after you chose the transcript file. You can still click to choose a different file.

Click **Import**. Done!

See Working with Multimedia Transcripts for next steps.

Preparing your Own Transcript

A **multimedia transcript in ATLAS.ti** consists of two documents: an audio or video file plus an associated transcript. The first step is to add the audio or video file to a project. Then you can associate one or multiple transcripts with the document.

Step 1 - Add an Audio or Video File

> Add the audio or video file that you want to transcribe: Select **Document** > **Add Documents**; or select the link option: **Document** > **Reference External Multimedia Document** from the main menu.

For more information see: Add a multimedia file to your project.

Step 2 - Create a Word file

> Create a new document in Word or a text editor of your choice, and save it under a meaningful name like "TR _Tim Miller_m_t_south_58"

(TR = transcript; Tim Miller = interviewee name or pseudonym; m = male; south = from region south; 58 = age 58).

Step 3 - Associate the Word File

> Open the multimedia document, click the **Documents** button in the toolbar, and select **Import Transcript.** Select the document that you have prepared in step 2.
> The transcript will be imported into the project and loaded next to the multimedia file, and you see a new entry in the Project Explorer under the Multimedia Transcripts branch.

Step 4 - Begin to transcribe

> Activate the option **Edit Timestamps**.
> inst

> Start playback of the multimedia file, and listen to as much as you can remember. **Pause** the audio or video recording.

> Start typing the transcript in the space on the right-hand side.

> Click on the **Add Timestamp** button. The timestamps in the text are displayed in form of green markers.
> inst
> Repeat.

Working with Multimedia Transcripts

A **multimedia transcript** consists of two documents: an audio or video file + an associated transcript.

Opening Transcripts

In contrast to ordinary documents, transcripts are found at the very bottom of the project explorer on the left-hand side of your main window, in the **Multimedia Transcripts** section.

This section is only visible if your project contains transcripts.

Synchronized Scrolling

When opening a multimedia transcript, **synchronized scrolling** is activated by default. This means when you play the multimedia file, the text segment in the transcript between two timestamps is highlighted while the multimedia file is playing – and when you reposition the text cursor, the multimedia document seeks to the associated time.

Note that positioning will only be as good as your timestamps. Most transcripts won't have timestamps that are good enough for word-accurate synchronization.

If the document does not contain timestamps, ATLAS.ti estimates the synchronization based on the length of the multimedia file and the transcript. You can add time stamps for a better synchronization. See below for further information on how this is done.

Timestamp List

You see a list of time stamps in the audio or video document pane. If you want to see more or less, you can grab the header with your mouse and pull it up or down.

You can quickly navigate through the document by selecting timestamps from this list, and start playback at the appropriate time by double-clicking.

Editing Timestamps

> To see the timestamps, click on the **Edit Timestamps** button in the toolbar. The timestamps are indicated by green markers.

You can modify the position of an existing timestamp, add new ones, or delete timestamps.

Moving a Timestamp

Simply drag the green marker to reposition the timestamp. Note that you cannot reorder timestamps this way, so you can only drag between the surrounding timestamps.

Adding a Timestamp

> In the transcript, put the cursor at the position where you want to add the time stamp. In the multimedia document, position the play-head (red line) to the corresponding position. In the toolbar, click **Add Timestamp.**

Note you move the read play head by scrolling with the mouse or by using the arrow keys, but not by grabbing it with the mouse.

Deleting a Timestamp

inst
Select a timestamp in the list, right-click and select **Delete.**

Deleting an Association

> Open the Multimedia Transcripts branch in the Project Explorer, right-click on either transcript or the multimedia file, and select **Delete.**
> This does not remove the document from the project. The multimedia file and transcript are still available in the Documents branch, but they are no longer associated.

If you want to remove an associated document from the project, you need to delete the association first.

Working With Reference Manager Data

ATLAS.ti is frequently used for assisting with literature reviews. See for example:

- On Conducting a Literature Review with ATLAS.ti
- Managing Literature Reviews Using ATLAS.ti

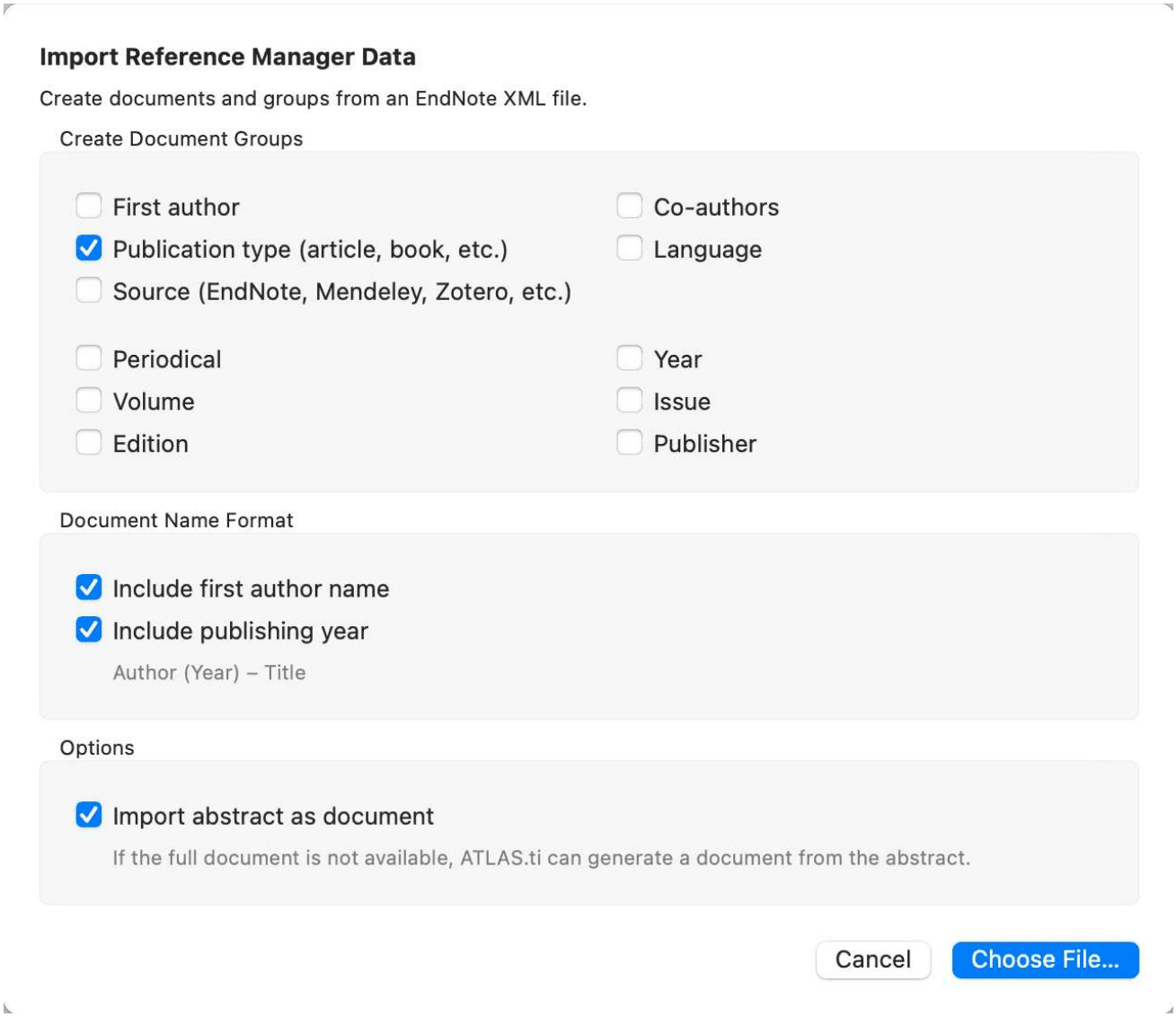
video tutorial Literature Review with ATLAS.ti 22 Windows & Mac

You may have collected lots of articles in a reference manager. Not all of these articles will be relevant for the literature review for a particular research or paper you are writing. Thus, create a collection of 50 to 200 articles in your reference manager for further coding and analysis in ATLAS.ti.

You can import EndNote XML files or bibtex files. This should allow you to import data from almost all reference managers.

Importing Reference Manager Data

> To start importing the file into ATLAS.ti, select the **Document** > **Import** > **Reference Manager Data**.



If your reference manager does not export the PDF files into a separate folder, make sure that the PDF files are stored at the locations indicated in the XML or bibtex files. Usually this will be the library of your reference manager.

ATLAS.ti can create document groups for you based on the following metadata:

- First authors
- Co-authors
- Publication type (journal article, book, book chapter, etc.)
- Language
- Source - If you import documents from more than one reference manager, it is useful to group documents by source, so that you know where they were coming from.
- Periodical
- Year
- Volume
- Issue
- Edition
- Publisher

Document name format

The default name for the document in ATLAS.ti is the name of the document as it used in the Reference Manager. For easier sorting and organization, you can choose to add the name of the first author, and the publishing year to the document name **(recommended)**.

If the full document is not available

If only the document abstract is available and not the full document, you can select to import the abstract as a document.

If you have written a note about the document in your Reference Manager, this note will be imported as document comment.

> Make your selections.

> Click on **Choose File** and select the XML or bibtex file that you have exported from your reference manager.

Inspecting the Imported Documents

> Open the Document Manager

The imported documents are sorted by author and year in alphabetical order, if you selected this option. Further, document groups are created from all options that were selected.

The text entered as note in the reference manager is imported as document comment. If the URL of a document is available, it will also be added into the comment field.

Importing Social Network Comments

Video Tutorial: Importing social network comment. Social networks provide a powerful reflection of the structure and dynamics of the modern society. Often it is not a single tweet or post that is interesting, but the reactions and interactions of the social network users. There are many applications for analysing user comments such as: social movements, brand communities, marketing campaigns, political discourse, discourses on currently relevant topics within a given community or society, understanding your audience, or even shit-storms.

ATLAS.ti imports Excel files generated by exportcomments.com. You can use the service for free to export up to 100 comments per link. For a small fee, you can use the service for three days to download the data you need. This also allows you to export nested comments.

Supported social networks are:

- Facebook
- Twitter
- Instagram
- YouTube
- TikTok
- VK
- Twitch
- Discord

> Look for a post on social networks whose comments you want to analyse. Copy the URL.

> Go to exportcomments.com, enter the URL and download the comments.

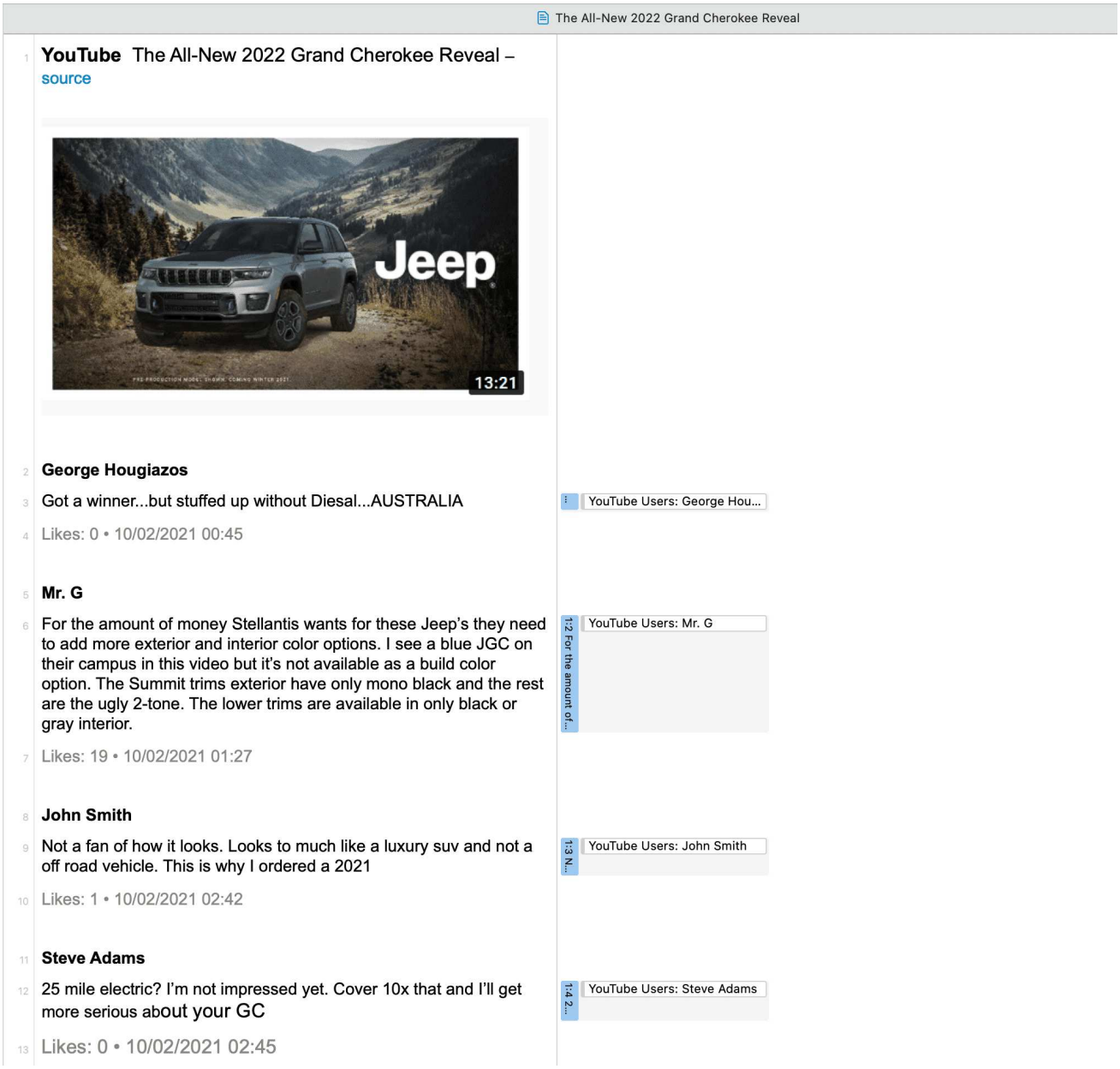
Go to ATLAS.ti and from the main menu select the **Document / Import / Social Network Comments**.

> Select the Excel file you exported from *exportcomments.com* and click **Open**.

ATLAS.ti codes all users automatically and creates categories for each social network. All automatically generated codes are grouped into a code group (Codes from social media comment import).

Name	Grounded	Density	Groups
YouTube	100	0	
Aaliyah Rose	1	0	[Codes from social media comment import]
Airs1	1	0	[Codes from social media comment import]
Antonio Diaz Ruiz	1	0	[Codes from social media comment import]
Armen Simonyan	1	0	[Codes from social media comment import]
Arthur Christ	1	0	[Codes from social media comment import]

This is how the document after import could look like. The title and a screenshot of the video that is being discussed have been added to the document:



A possible next step is to run a sentiment analysis:

D 32: The All-New 2022 Grand Cherokee Reveal

YouTube Jeep® | The All-New 2022 Grand Cherokee Reveal – source

George Hougiazos
Got a winner...but stuffed up without Diesal...AUSTRALIA
Likes: 0 • 02/10/2021 00:45
3: Sentiment: Positive
YouTube: George Hougiazos

Mr. G
For the amount of money Stellantis wants for these Jeep's they need to add more exterior and interior color options. I see a blue JGC on their campus in this video but it's not available as a build color option. The Summit trims exterior have only mono black and the rest are the ugly 2-tone. The lower trims are available in only black or gray interior.
Likes: 19 • 02/10/2021 01:27
32:2... Sentiment: Negative
YouTube: Mr. G

John Smith
Not a fan of how it looks. Looks to much like a luxury suv and not a off road vehicle. This is why I ordered a 2021
Likes: 1 • 02/10/2021 02:42
3: Sentiment: Negative
YouTube: John Smith

Steve Adams
25 mile electric? I'm not impressed yet. Cover 10x that and I'll get more serious about your GC
Likes: 0 • 02/10/2021 02:45
3: Sentiment: Negative
YouTube: Steve Adams

Happy Free
Chrysler tech center
Likes: 0 • 02/10/2021 03:03
3: YouTube: Happy Free

s foot continuation
Jeeps are fun especially the kind with the doors that come off.
Likes: 0 • 02/10/2021 03:07
3: Sentiment: Positive
YouTube: s foot continuation

sohail kazi
@jeep is this beast going to be launched in india??? Please answerr
Likes: 0 • 02/10/2021 08:53
3: YouTube: sohail kazi

Working With Survey Data

Video Tutorial: Importing Survey Data. These days, most surveys are conducted online. A positive side effect is that (a) all data is immediately available in a digital format and (b) respondents often do write lengthy answers to open-ended questions. If you work with surveys from the analog world, chances are, they will end up in an Excel™ spreadsheet at some point. Regardless how your surveys originate, ATLAS.ti can handle them once they exist in that format.

Online surveys can be created using a number of tools. What most of these tools have in common is that the let you export your data as Excel™ file. When importing such an Excel file via the Survey Import option in ATLAS.ti, a wizard will guide you through the import process, and you can decide which information from your survey should be included, which questions should be turned into document groups for comparative analysis, and which questions will make up the body of the data.

In addition to the answers to open-ended questions, demographic information like age, profession, or age group, answers to single choice questions (yes/no, or offering more than two options) and answers to multiple choice questions can be imported. Within the framework of ATLAS.ti these are mapped in the form of document groups, one group per value.

A survey broadly consists of the name of the survey, the questions, and the answers for each respondent. Questions can be of different type:

- Single choice between two (yes/no) or more options
- Multiple choice
- Open-ended

Within the framework of ATLAS.ti these concepts are mapped as follows:

Survey Concept	ATLAS.ti Concept
Open-ended question	Code (and code comment)
Answer to an open ended question	Content of a quotation (data)
Single Choice question	a document group for each value
Multiple Choice question	a document group for each value

ATLAS.ti automatically codes each open-ended question with the information provided in the header. As this is usually the question, the code name would be very long. Therefore, you can split it into code label and comment. The recommendation is to use the question number as code label and the text of the full question as comment. In order to do this you add two columns (::) between question number and question, as in: *'Question 1::Tell me about the highlights of your last vacation'*.

Data are imported case-based. This means each row of the Excel™ table that is imported from the online survey tool is transformed into a document.

Click here to learn how to Import Survey Data.

Importing Survey Data

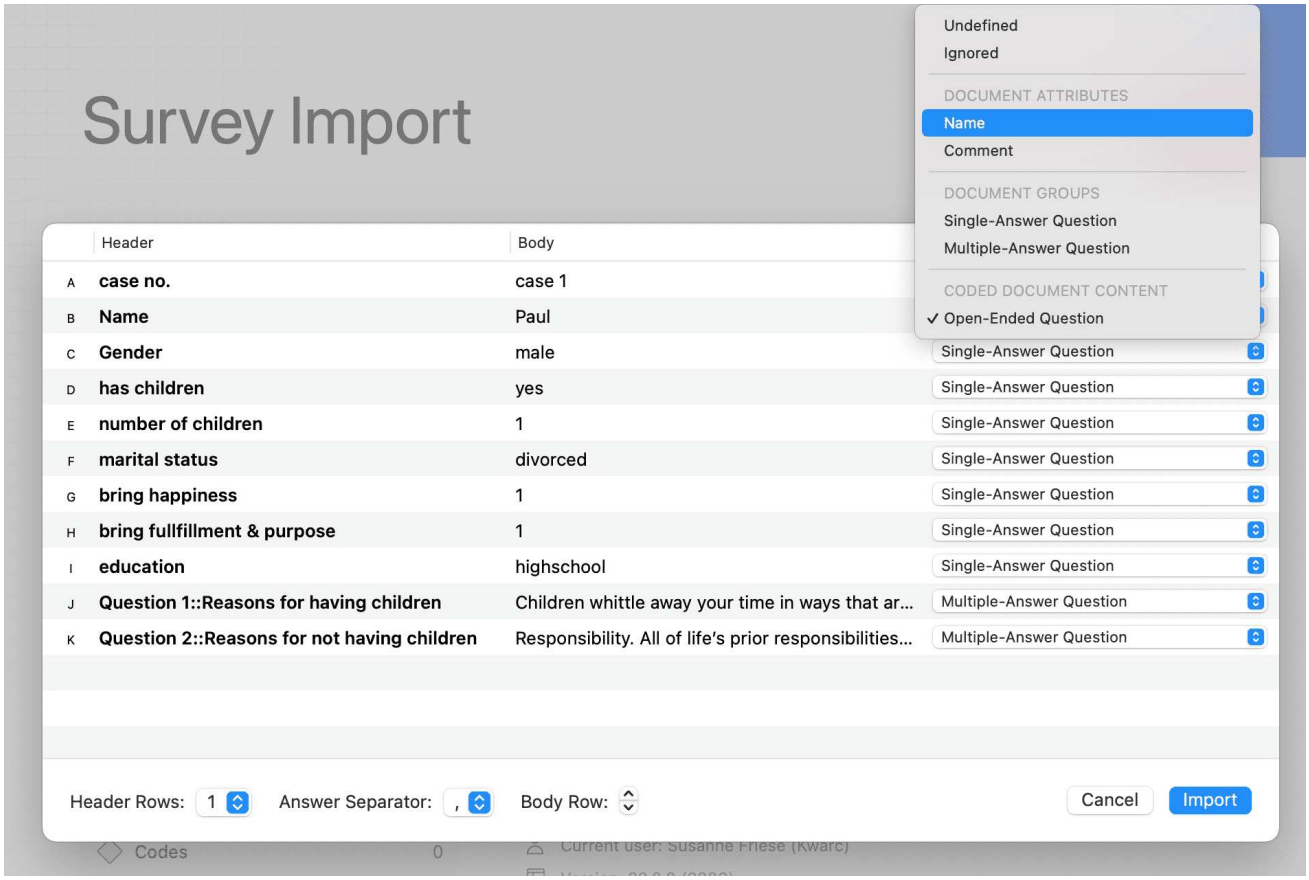
If you import the same table repeatedly, rows with already existing documents are ignored. This way, you do not have to wait until the last respondent has filled out the questionnaire.

When importing the same data again with updated information, you can only import new cases (i.e. rows in Excel), but not new questions (i.e. columns in Excel).

From the main menu, select **Document** > **Import** > **Survey**.

Select the Excel file to be imported and click **Open**.

A wizard opens that guides you through the next steps:



For each table column you can decide whether it should be transferred into a document attribute, a document group, or content of a coded document. You can also exclude columns.

Undefined: ATLAS.ti tries to make an educated guesses for each column. If this is not possible, then 'undefined' is entered. You then need to select a suitable option. The data cannot be imported if some columns are set to 'undefined'.

Ignored: Select if you do not want to import this column. We recommend that you clean up your table beforehand in Excel and remove everything that you don't want to import to ATLAS.ti. This will facilitate the import.

Document Attribute: name: use the content of each cell in this column as document name. You can also select more than column to make up the name as shown in the example here. If both 'case no.' and 'Name' are chosen to become the document name, the document name will be 'case 1 Paul', 'case 2 Anne', 'case 3 Toni', etc. You can use the **Body row** option in the toolbar at the bottom of the wizard to move through the contents of each row.

Document Attribute: comment: Use the information in this column as document comment.

Document Group: single-answer question: If you have a question where you ask respondents to indicate their marital status, and the possible answer choices are: single, married, divorce, then ATLAS.ti creates a document group for each of these values:

- martial status::single
- marital status::married
- marital status::divorce

Document Group: multiple-answer question Use this option, if respondent can give multiple answers to one question. For example: "What are your favorite flavors of ice cream? Select any that you like." ATLAS.ti will create a document group for each answer choice. The default answer separator is a comma (,). See the bottom section of the wizard. Adjust the separator, if a semicolon (;) is used.

Coded document content: open-ended question: All answers that should become part of the body of the document.

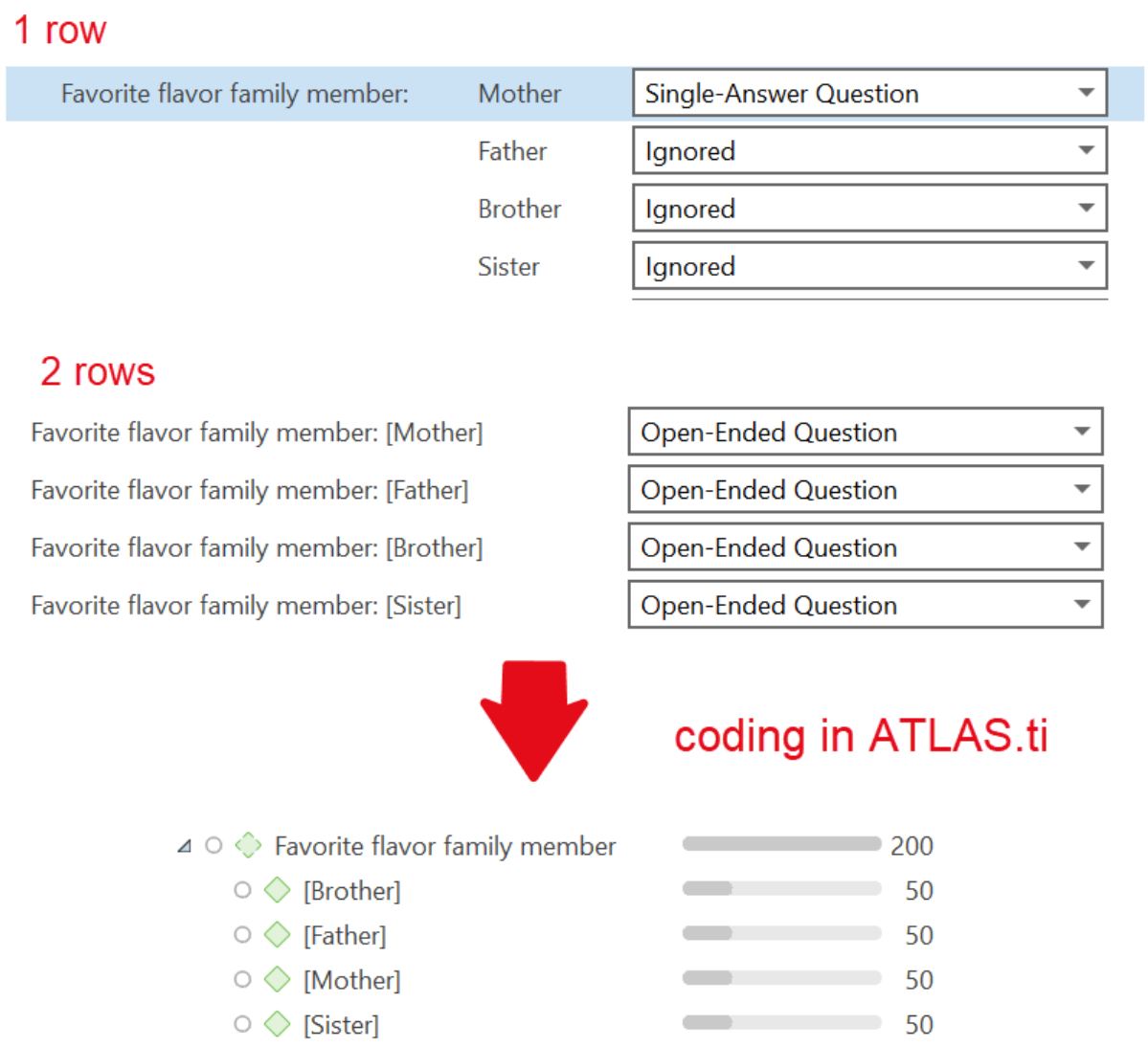
Toolbar

Header Rows

Some survey apps use two header rows as header, like Survey Monkey for instance. This means, your Excel output could look like this:

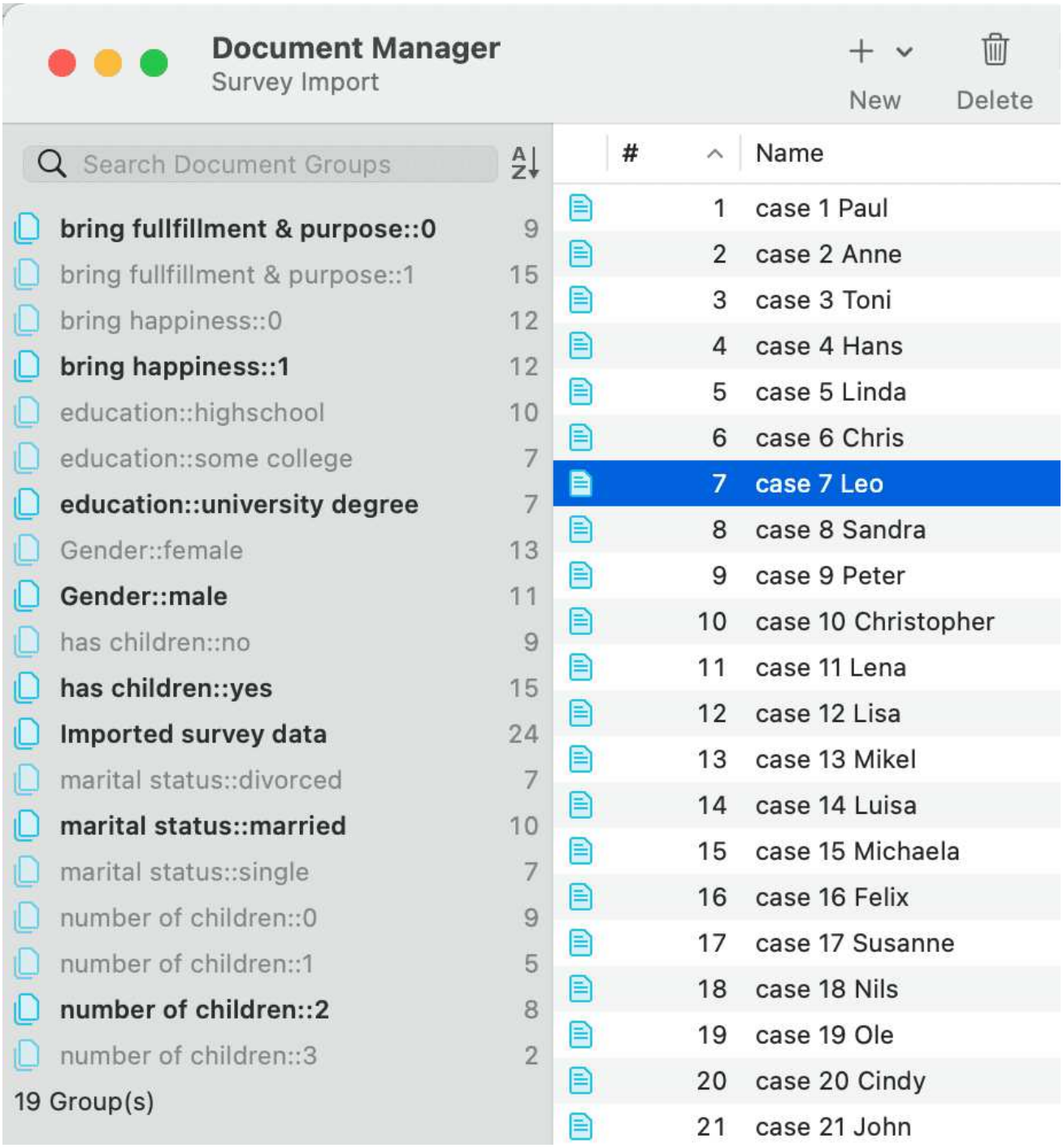
A	B	C	D	E
Respondent ID	Collector ID	Favorite flavor	Favorite flavor	Least favorite::Which flavor of ice cream is your least favorite?
		Provided choices	Other (please specify)	Response
3884969241	52484160	Strawberry		Chocolate
3190527412	52484160	Strawberry		Chocolate
3190527234	52484160	Strawberry		Vanilla
3190527229	52484160	Strawberry		Strawberry
3190527228	52484160	Chocolate		Chocolate
3190527225	52484160	I don't like ice cream		Vanilla
3190527068	52484160	Other (please specify)	Melon	Vanilla
3190527060	52484160	Strawberry		Chocolate
3190527058	52484160	Other (please specify)	Pie	Strawberry
3190527055	52484160	Vanilla		Chocolate
3190526891	52484160	Other (please specify)	Bubble gum	Strawberry
3190526882	52484160	Chocolate		Vanilla
3190526879	52484160	Other (please specify)	Not sure	Vanilla

If this is the case, you need to change the header rows from 1 to 2. Below you see an example:



Inspecting Imported Survey Data

> Open the Document Manager and take a look at what has been added to the project:

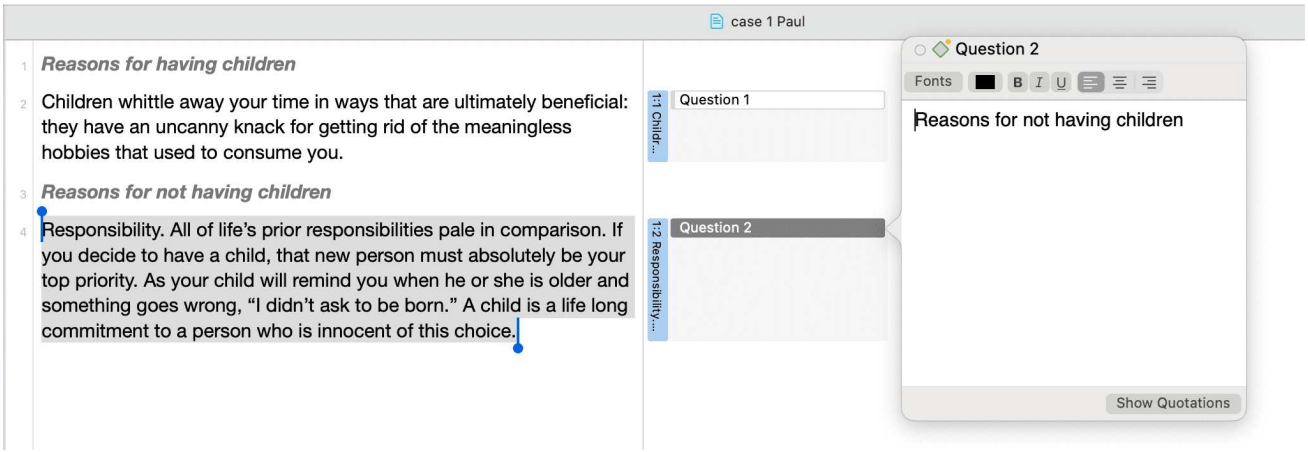


Document names: If you do not specify a name for each case, the default is case 1, case 2, case 3 and so on. In the example shown here, the case no. and the name is used as document name.

Document groups: Based on the information provided in the Excel table, document groups are created. The highlighted respondent 'case 7 Leo' in the example has a university degree, is a male, is married, and has 2 children. He answered the question: 'Do children fulfillment & purpose' with yes.

ATLAS.ti automatically creates a group that contains all survey data in case you work with data from multiple sources.

Data: The document text for each case consists of the answers to the open questions. Each answer is automatically coded with the information provided in Excel. The code can just be the question number or a longer label.

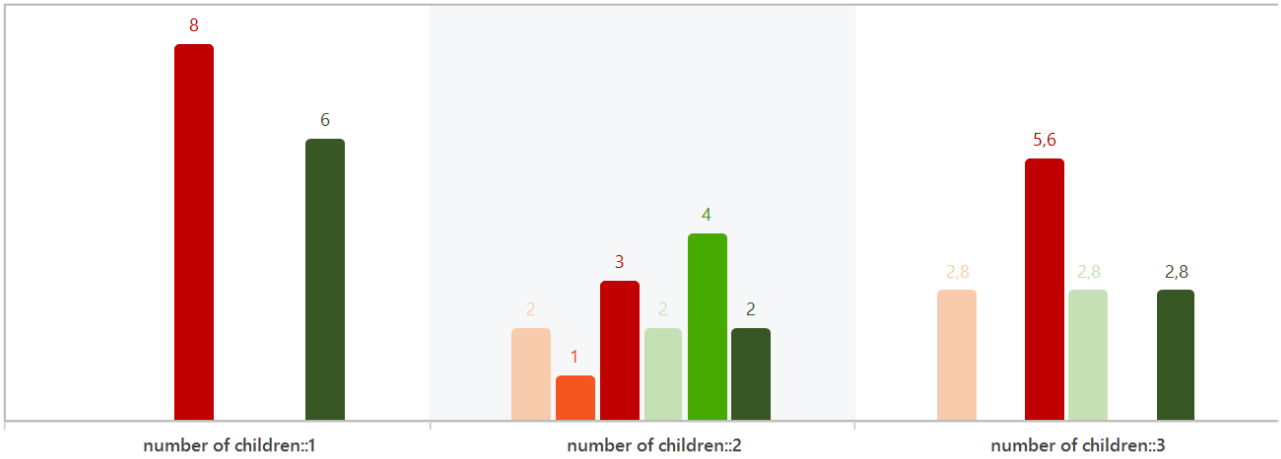


You can now begin to add some more detailed coding for each question. Useful tools that help you to quickly gain insights into your data are - AI Coding, sentiment analysis, and letting ATLAS.ti look for concepts.

For a comparative analysis based on the document groups that have been created, you can use the Code Document table:

Code–Document Table

	number of children::1 5 10		number of children::2 8 16		number of children::3 2 4		Totals	
contra: being there for others 3			2	41,67%	2,8	58,33%	4,8	100,00%
contra: not worth the trade-off 6			1	100,00%			1	100,00%
contra: self-centered 15	8	48,19%	3	18,07%	5,6	33,73%	16,6	100,00%
pro: altruism 17			2	41,67%	2,8	58,33%	4,8	100,00%
pro: biology 21			4	100,00%			4	100,00%
pro: self-centered 23	6	55,56%	2	18,52%	2,8	25,93%	10,8	100,00%
Totals	**14**	33,33%	**14**	33,33%	**14**	33,33%	**42**	100,00%



The image above shows a comparison of respondents with 1, 2, and 3 children. Compared are the kind of reasons they give pro and contra having children.

Analyzing Survey Data

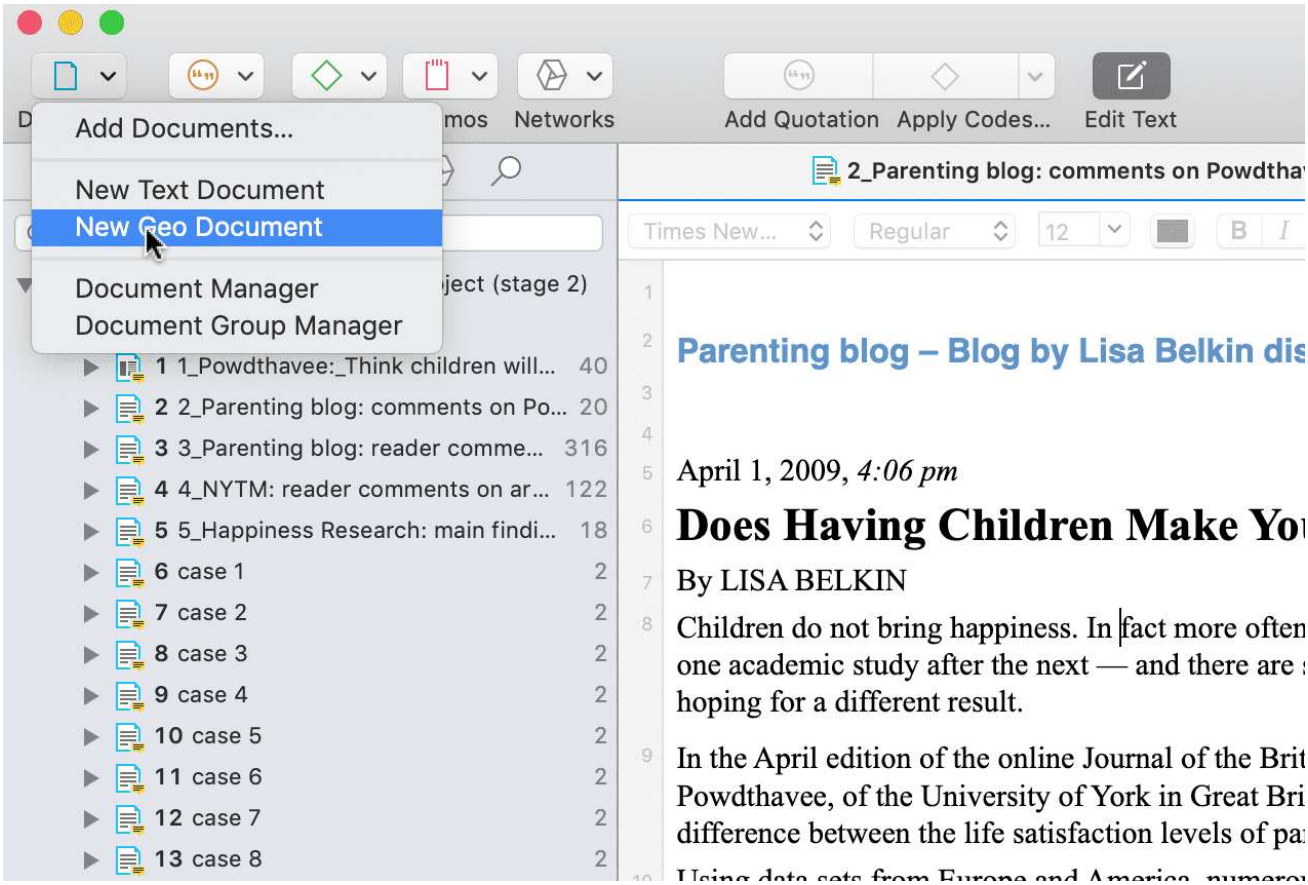
- Analyzing survey data requires that you know how to code. See Working With Codes.
- You may want to explore the data first by creating Word Clouds or Word Lists, see Exploring Data and by using the auto coding feature. See Search & Code.
- After coding, further analysis options that are often used with survey data are:
    - the Code-Document Table
    - the Query Tool in combination with the Scope option
    - the Code Co-occurrence Table

Adding a Geo Document to a Project

ATLAS.ti uses Open Street Map as its data source for geo documents. You can view it as map, satellite, or hybrid. Even though there is only one data source, you can also use more than one geo docs in your project, e.g. to create distinct sets of locations, to simulate tours, to simply tell different stories.

> To add a geo document to the project, go to the Document button in the toolbar, and select New Geo Document from the drop-down menu.

A new document is added and if you open it you see the world map. The default name is "Geo Document". You may want to rename it, so it better describes your analytic intention.



Finding a Location

The first thing you probably want to do is to query an address:

> Enter a location, address or landmark like Eiffel Tower into the search field.

The map immediately displays the location that fits the search term and adds a place mark.

Changing the View

At the bottom left-hand side, you can switch between map, satellite, or a hybrid view.

For further information, see Working with Geo Data.

Working with Geo Documents

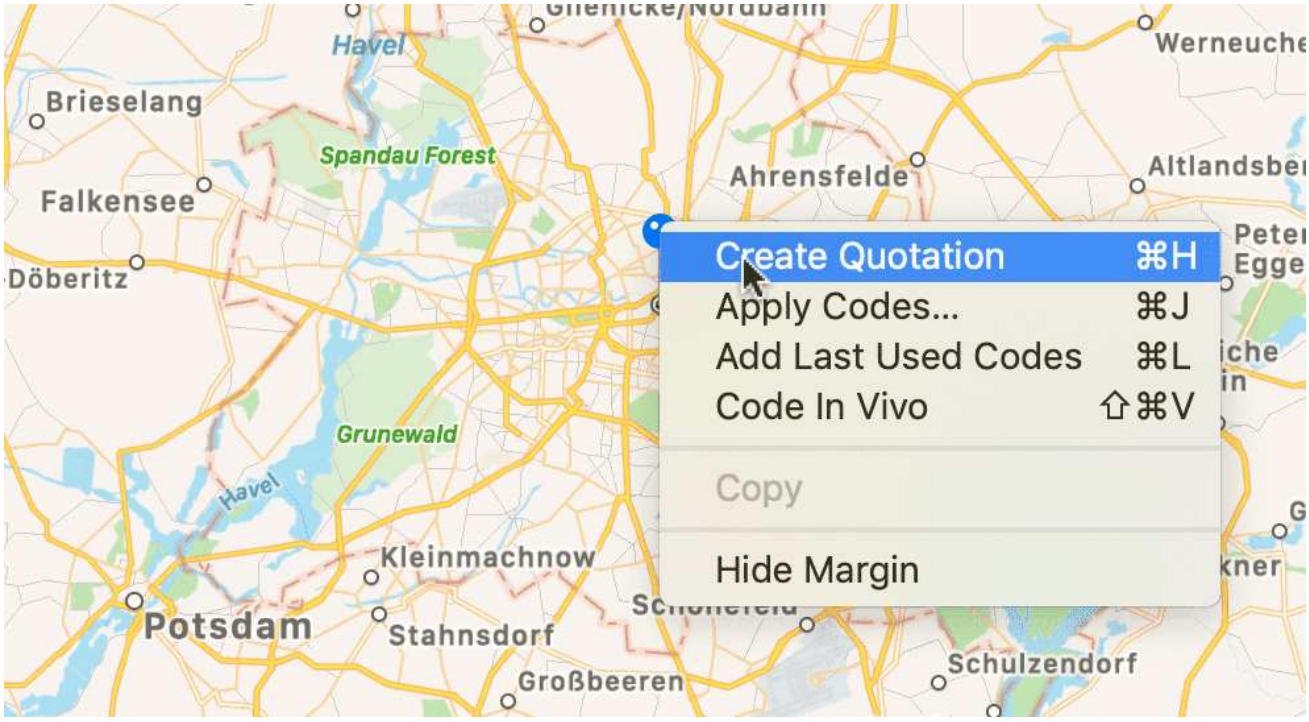
Creating Geo Quotations

For more general information on quotations, see Quotation Level and Working with Quotations.

Creating a Geo quotation is not much different from creating other type of quotations. The only difference is that the quotation is just one location on the map - the place mark, and not a region.

> Right-click on the place mark and select the option **Create Quotation**.
> To create further quotations:
> inst
> Either enter a new address and search for a location of interest, or left-click a point of interest on the map to set a place mark.

> Right-click and select **Create Quotation** from the context menu, or use the short-cut **cmd+H**.
> tip
> You can enter a name for geo quotation in the inspector on the right-hand side.



Display of Geo Quotations

Geo quotations can be accessed in the margin area, the Quotation Manager, the Project Explorer, and from within networks. Geo quotations are displayed as follows:

- The quotation icon shows a place mark.
- In the Project Explorer, the Quotation Reader and Manager and all reports, geo quotations are referenced as decimal degrees, e.g. LAT 48.859911° LON 2.377317°. In addition, the Quotation Manager shows a preview of the Geo location. You may want to consider renaming Geo quotations, e.g. by adding the name of the location. Another option is to add a comment. See also Working with Multimedia Quotations.

Activating Geo Quotations

> Select a Geo quotation in any of the following places and double-click:

- margin area
- Quotation Manager
- Project Explorer
- Network

The quotation will be displayed in context.

An activated place mark is colored in orange. Non-activated place marks are colored in gray.

Modifying a Geo quotation

> To modify a Geo quotation, activate it, so it is highlighted in orange.

> Move the place mark to a different location. The quotation follows along.

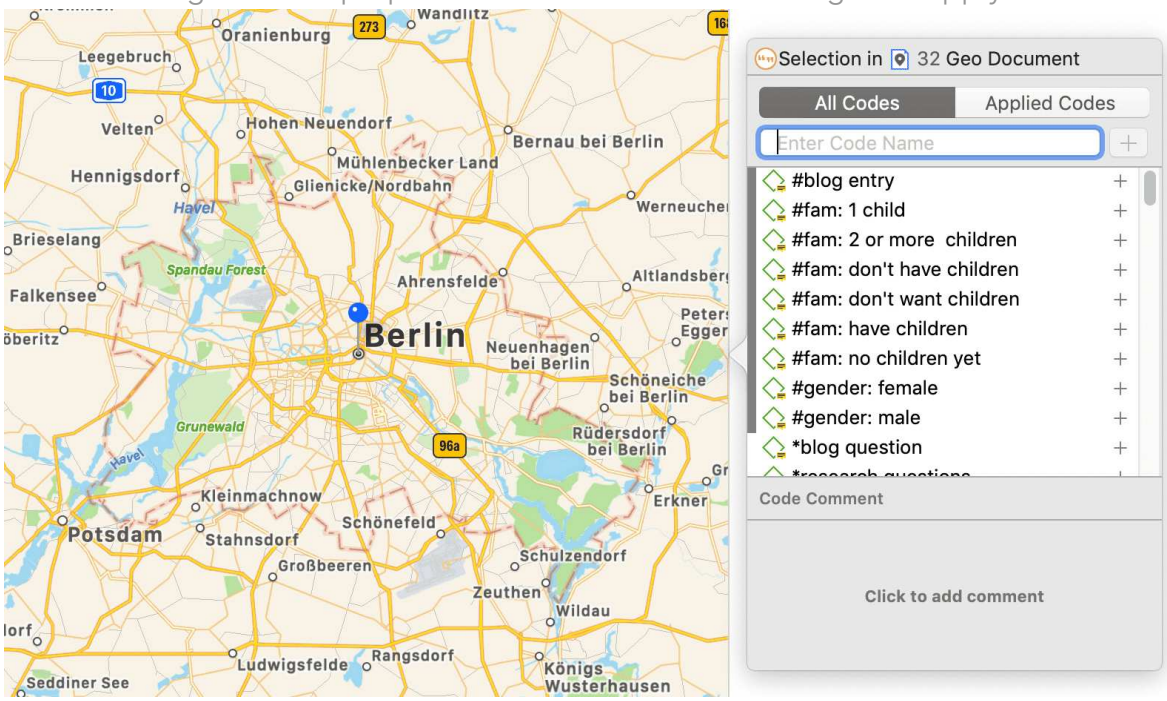
Coding Geo Quotations

For more general information on coding, see Coding Data.

You can also create a quotation and link a code to it in one step, or code an existing quotation:

> Set a place mark or select an existing quotation, right-click and select the option **Apply Codes** or **cmd+J**.

> All other drag-and-drop operations described for coding also apply.



Creating a Geo

You can create a snapshot from the geographic region that is currently shown on your screen. This snapshot is automatically added as a new image document.

The advantage of the image is that you can select a region as quotation and not only a single point on a map. Further you can browse the Geo location in Google Maps (see below).

> Open a Geo document.

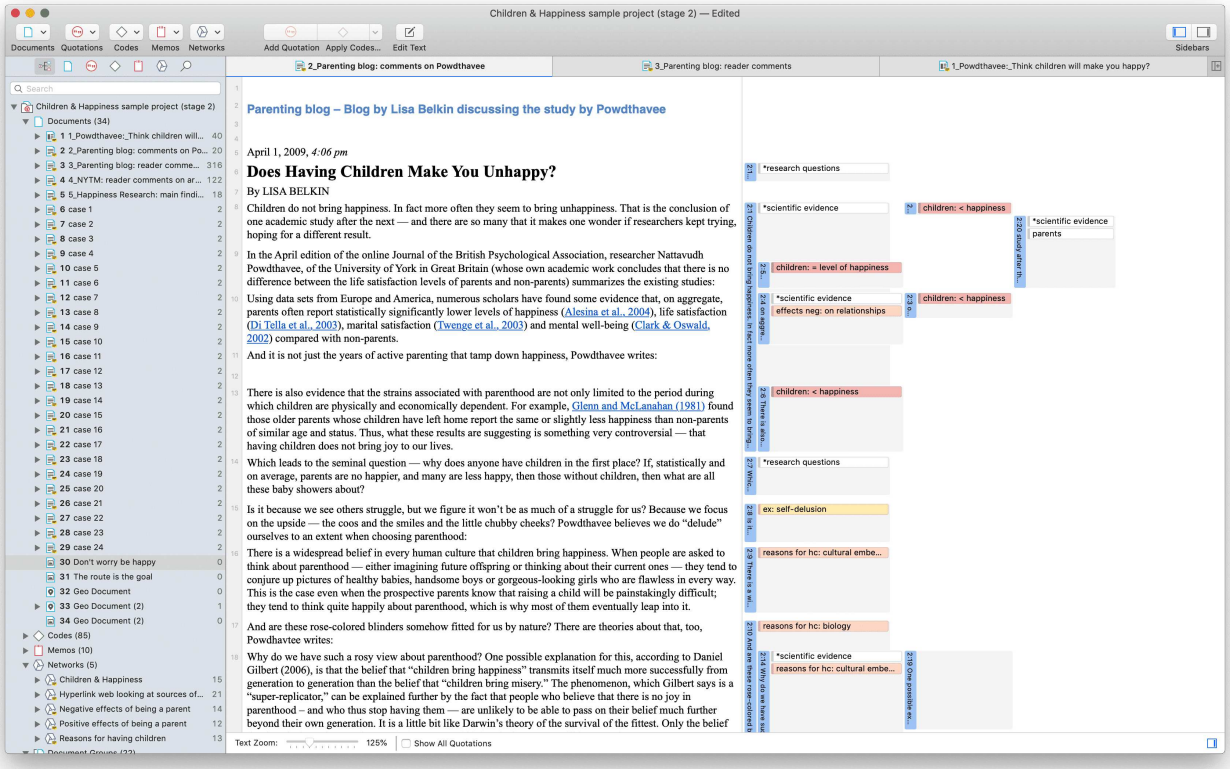
> In the Document tab, click on the button **Create Snapshot**.
> A new document is created. The default name is: 'Geo Snapshot @ longitude:latitude' of the last selected location.

As a snapshot results in an image document, you can also handle it like an image document. See for example Creating Image Quotations.

Managing Documents

Whenever the content of a document needs to be displayed, printed, or searched, it accesses its data source and loads the content. This request is often triggered indirectly, e.g., by displaying a quotation. The following lists a few procedures that directly or indirectly load the content of a document:

- Activating a document in the Project Explorer or the Document Manager.
- Activating a quotation in a Navigator, the Quotation Manager or the Quotation Reader.
- Selecting a quotation for an activated code or memo.
- Activating a hyperlink in the margin area.



Loading Documents

> Select a document in the Project Explorer and double-click. It will be loaded in the next available tab.

Alternatively:

> Double-click a document in the Document Manager. (To open the Document Manager double-click on the main document branch in the Project Explorer.)

Editing Documents

> To edit a document, click on **Edit text** in the toolbar. You will now see an edit toolbar on top of the document with various options.

> To leave edit mode, click on **Edit Text** again.
> tip
> We recommend not do stay in edit mode while coding. You may accidentally modify text while highlighting text segments for coding.

When working in a team, we strongly recommend **not** to edit text. If team members edit the same document, you will lose one version when merging the project. If text needs to be modified, it should only be edited in the Master Project by the project administrator.

Renaming Documents

> Select a document in the Project Explorer or Document Manager and left-click. This enables in-place editing.
> Renaming a document in ATLAS.ti does not change the name of the original

> source file. As described above under Adding Documents, documents are copied into the ATLAS.ti library when adding them to an ATLAS.ti project, and ATLAS.ti no longer needs the original source files.

Deleting Documents

If you accidentally have added documents or want to remove them from your project for other reasons, you can remove them.

> Select one or multiple documents in the Project Explorer or the Document Manager, right click and select **Delete**.

If you delete a document by mistake, you can always use the **Undo** option in the Quick Access toolbar.

After deleting documents, the consecutive numbering may be off. To renumber documents in consecutive order, from the main menu select **Documents > Renumber Documents and Quotations**.

Duplicating Documents

If you need a document for different purposes, e.g. you want to view it from different angles and want to code different aspects; or if you want to associate it with different transcripts, you can duplicate a document. All work that you have done so far in the document, like the document comment you have written, all quotations and their comments, all hyperlinks, all linked codes and memos will be duplicated as well,

> Open the Document Manager and select one or more documents that you want to duplicate.

> Click on the **Tools** tab and select **Duplicate Document(s)**

The duplicated document(s) will be added at the end of the list of documents. They have the same name as the original document(s) plus a consecutive number in parentheses.

In terms of project size, the file(s) in the library are not duplicated. The duplicated document uses the same source file as the original document.

Renumbering all Documents

This option becomes useful after you removed one or more documents from a project. This results in gaps in the sequence of document numbers. You may remove these gaps by renumbering all documents:

> From the main menu, select Documents > Renumber Documents and Quotations.

User-defined Document S

This is currently only possible in the Windows version.

Project Management

Opening a Project

To open a project, click on a project on the Welcome Screen, or if a project is already open, and you want to open another one, select **Project > Open**.

Saving a Project

To save a project, select **Project > Save** from the main menu, or use the key combination **command + S**. The project is saved as internal ATLAS.ti file in the ATLAS.ti library. The default location for the library is the application folder on your computer. See Where Does ATLAS.ti Store Project Data?

It is possible to either change the default location for the ATLAS.ti library or to create new libraries. See About ATLAS.ti Libraries.

> If you want to save an external copy of your project, you need to export it. See Project Export.

Renaming a Project

Select **Project > Rename** from the main menu.

Deleting a Project

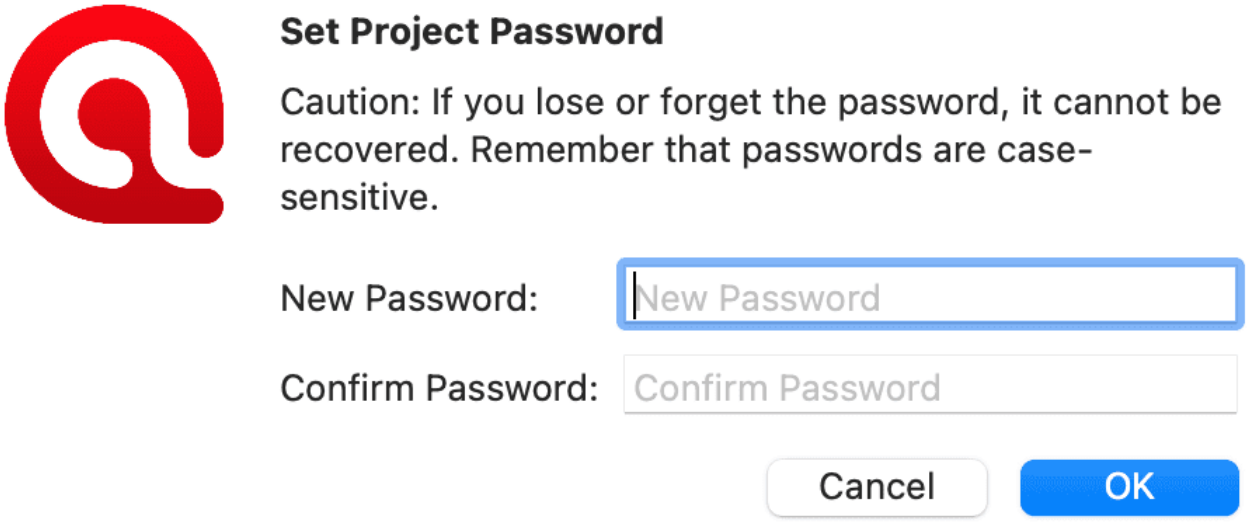
> You can delete projects from the welcome screen, either when you start ATLAS.ti or by selecting **Project > Open**.

> Select a project on the welcome screen, right-click on a project and select the option **Delete**.
> You will be asked to confirm the deletion as this is a permanent action that cannot be undone.

Password Protection

To set a password for your project, you need to load it first.

Select Project > Change Password.



ATLAS.ti Scientific Software GmbH does not save your passwords. We cannot access, read or recover your password. If you cannot remember your password, you can no longer access your project!

ATLAS.ti Project Data is Saved to a Library

Working with the ATLAS.ti Library

The default location for ATLAS.ti project files is a sub folder under the application support folder on your Mac. You can however also create a user-defined location where *all* of your ATLAS.ti data is stored. Important to know

- Each user works within her or his own ATLAS.ti library.
- Each user can define where the ATLAS.ti library should be located. This location can be on your computer, on a server, or an external drive.
- It is not possible to use a cloud sharing service like Dropbox because the specific way in which such systems work can jeopardize the integrity of the ATLAS.ti library.
- It is possible to work with multiple libraries. Theoretically, you could create a new empty library every time you start a new project. This, however, requires careful data management on your part as you need to keep track where all of these different libraries are located.

Changing the Library Location

> From the main menu, select ATLAS.ti > Switch Library.

A wizard opens that guides you through the process. The next choice you need to make is whether you want to open an existing library, move the library to a different location, or create a new empty library.

Moving the Library to a Different Location: Chose this option if you want or need to move your current library to a different location, e.g. because you do no longer want to work on the C drive. It is possible to keep a copy of the library at the old location.

Creating a New Library: This option allows you to create a new library at a location of your choice. If you already have projects, none of these will be moved over into the new library. To fill this library, you either create new projects from scratch, or you import project bundle files that you previously exported from other libraries.

Open an existing library: Chose this option if you work with multiple libraries, and you want to gain access to an already existing library at a different location.

> After you made your choice, click Continue.

- If you selected to open an existing library: Select the location for this library

- If you selected to **move the library:** Select the location where you want this library to be. You can keep a copy of the actual state of the library at the current location. Just keep in mind that this copy is not updated if you continue your work using the library at the new location.
- If you selected to **create a new empty library:** Select where this new library shall be created. After confirming the new location, your opening screen will be empty, and you can begin to fill it with new projects.

A note from the Help Desk: We know that your project data is very valuable to you and that you do not want to lose it. Therefore, please select a sensible location for the ATLAS.ti library. For instance: Do not store it on the desktop. You probably have a folder where you store all project related data. If you cannot or do not want to use the ATLAS.ti default location, we recommend that you create a sub-folder for your ATLAS.ti related work within your project folder, and within this sub-folder, a dedicated folder for your library. Make sure your project folder is included in any automated back-up routine of your computer!

Creating a Project Backup

ATLAS.ti projects cannot be opened by older versions of ATLAS.ti.

Please export your projects on a regular basis and store the bundle files in a safe location. In case something happens to your computer, you still have a copy of your project to fall back on!

To create a backup of your project, you need to **export** it and save it as project bundle file on your computer, an external drive, a server or cloud location.

The ATLAS.ti Project Cloud can also serve as a useful backup. Don't forget to upload any changes you've made to your projects.

A **project bundle file** serves as external backup of your project independent of the ATLAS.ti installation on your computer.

- The project bundle file contains all documents that you have added or linked to a project, and the project file that contains all of your coding, the codes, all memos,comments, networks and links. Large audio or video files can be excluded from the bundle.
- Project bundle files are also used to **transfer projects** between computers. They can be read by both ATLAS.ti Mac and Windows. See Project Transfer.
- If your project contains linked documents, they can be excluded when creating a project bundle file. See "Creating Partial Bundles" below.

Exporting a Project

To export your project to either save it as backup or to use it for transferring it to a different computer:

> From the main menu, select **Project** > **Export** > **Project**.

If your project does not contain multimedia files, the **Save File Dialog** opens. If it does contain multimedia files, see Exporting partial bundle files.

> Select a location for storing the project bundle file.

The default name for the bundle will be the project name. You can rename the project bundle file at this stage, which however does not change the name of the project that is contained within the bundle.

> Select a name and location where you want to store the project and select Save.
> tip
> Think of the project bundle file like a bag that contains your project. Putting a different label on the outside of the bag does not change anything that is inside, which is your project with all your coded segments, comments, memos, networks, etc. and all documents that have been added to it. When you import the project bundle, the project name after import will still be the original name. If you want to rename the project file, you need to do this either during the process of importing the project, or on the opening screen. See Project Management.

Exporting a Project in XML Format

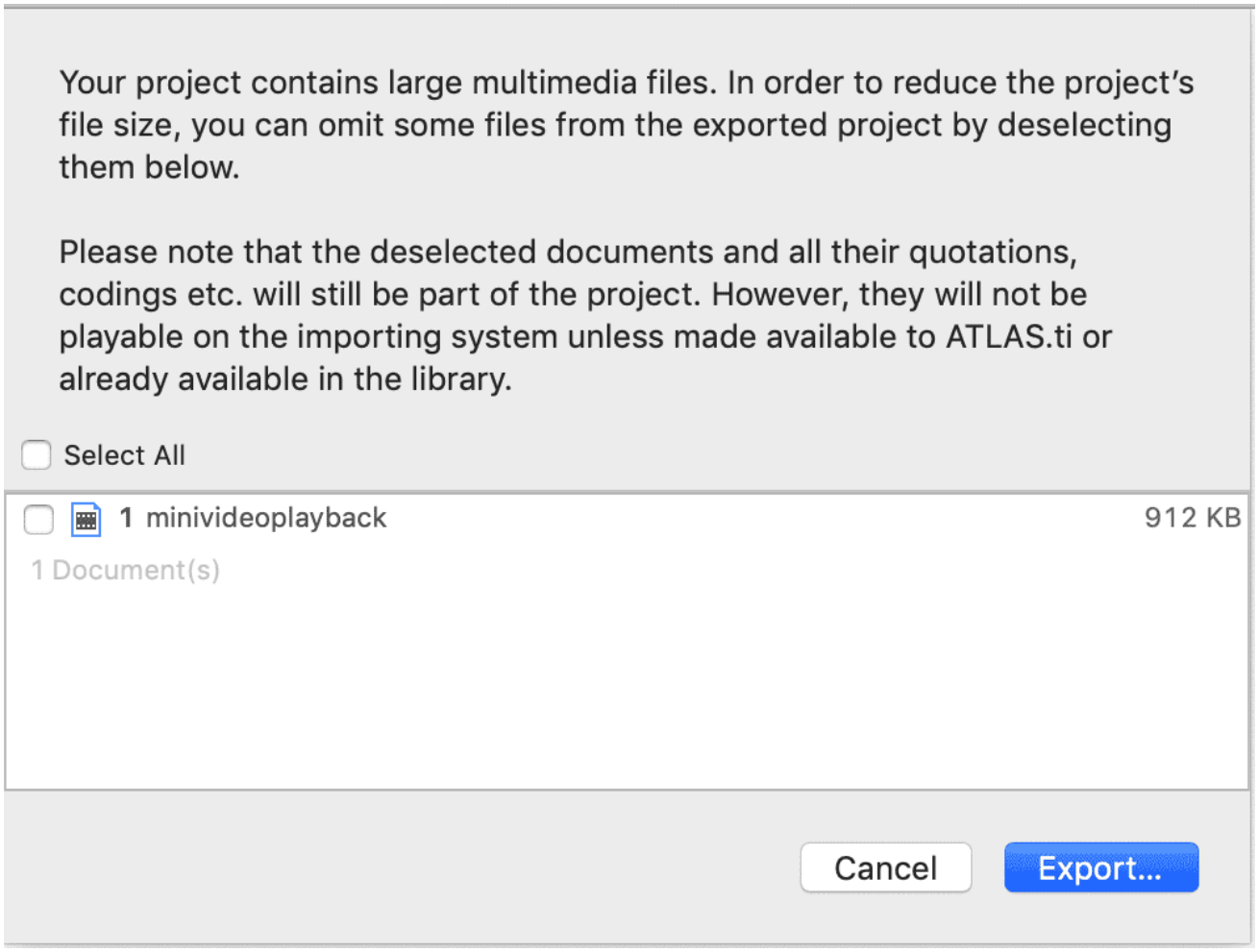
You can export an ATLAS.ti for Mac project in XML format. This opens up numerous possibilities for external use as a non-proprietary format, e.g. to archive data. The qualitative data archive in Essex (today UK Data Service), originally used the ATLAS.ti XML format as blueprint for their standard. Another use case is to import data into other applications.

> From the main menu, select **Project** > **Export** > **XML**.

Exporting a partial bundle if your project contains multimedia files

If your project contains large multimedia files, you can exclude those. This reduces the size of the bundle file. When preparing a partial project bundle, make sure you also back up the multimedia files that you excluded from the bundle. If you import the project at a later stage, you can relink excluded files to the project during or after import.

If your export a project that does contain multimedia files, the following window opens:



> Deselect all files that should NOT be included in the bundle, then click on Export.

Project Transfer

You can transfer ATLAS.ti projects to the web version and vice versa. The latter is the recommended option - begin your work in the Web version, especially if you are interested in synchronous coding with a team. If you want to use the functionality of the desktop version, export your project and import it into the desktop version. If you transfer a desktop project to ATLAS.ti web, the formatting of document changes as online you work in a browser. Therefore, you cannot set up a mixed team work project where some people work in the desktop version and others in the web version.

ATLAS.ti projects cannot be opened by previous versions of ATLAS.ti.

In order to transfer a project to a different computer, e.g., to share it with team members, you need to create a **project bundle file**.

A project bundle file contains all documents that you have added or linked to a project. In addition, it contains the project file with all codings, codes, memos, comments, networks, and links.

To create a project bundle file:

> From the main menu, select **Project** > **Export** > **Project**.

If your project does not contain multimedia files, the **Save File Dialog** opens. If your project does contain multimedia files, see Creating Partial Bundle Files.

The default name for the bundle will be the project name. You can rename the project bundle file at this stage, which however does not change the name of the project that is contained within the bundle.

> Select a name and location for storing the project bundle file and click **Save**.

Think of the project bundle file like a bag that contains your project. Putting a different label on the outside of the bag does not change anything that is inside, which is your project with all your coded segments, comments, memos, networks, etc. and all documents that have been added to it. When you import the project bundle, the project name after import will still be the original name. If you want to rename the project file, you need to do this either during the process of importing the project, or on the opening screen. See Project Management.

ATLAS.TI

Creating a Project Snapshot

A project duplicate is a copy of the internal ATLAS.ti project file. Reasons for creating a duplicate are:

- to preserve certain stages of your project to review it later.
- as fall-back version before a merge, in case something turns out different from what you expected, and you have already saved the merged project. See Project Merge.
- as a copy of your project that you want to use as template for another project.
- as a copy of your project to prepare for inter-coder agreement analysis. See Inter-coder Agreement.

To create a project duplicate,

> On the Welcome Screen, select a project, right-click and select **Duplicate**.

If a project is open, you can return to the Welcome Screen by selecting: **Project > Open**.

Just like ATLAS.ti project files, duplicates are saved internally in the ATLAS.ti environment. A duplicate has the same ID as the project from which it is created.

Where Does ATLAS.ti Store Project Data?

By default, ATLAS.ti projects and all documents that you add to a project are stored in a sub folder of the application support folder:

~/Library/Application Support/ATLAS.ti.

> The ATLAS.ti library is a system folder and not meant for user access. Files in this folder cannot be used outside ATLAS.ti!

This default location for storing ATLAS.ti data can be changed. See Working with the ATLAS.ti Library.

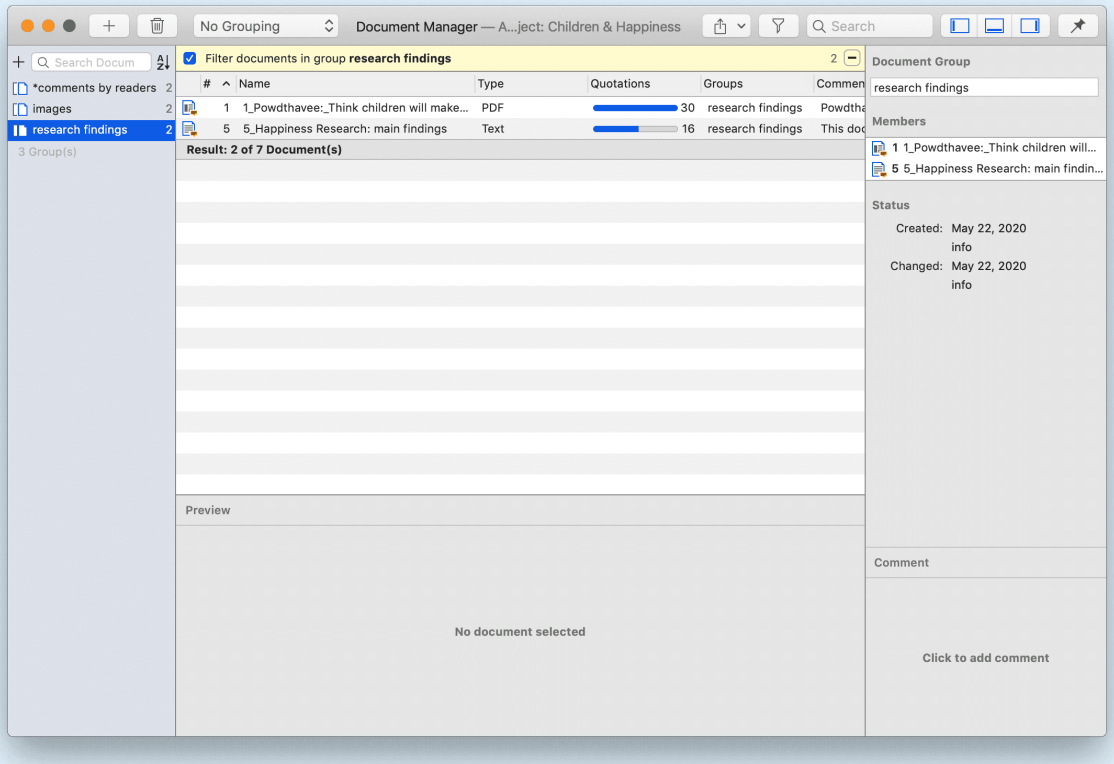
Working With Groups

Groups in ATLAS.ti help you to sort, organize and filter the various entities. Groups are available for documents, codes, memos, and networks.

Common to all groups are:

- An entity can be sorted into multiple groups. For example if you sort a document into the group *gender::female*, it can also be sorted into other groups like *location::urban*, or *family status::single*.
- If you click on a group in a manager, you activate a filter (see below). Then only the items that are in the selected groups are displayed.
- You can combine groups using Boolean operators. See for example Exploring Coded Data.
- You can save a combination of groups for further re-use in form of a smart group.
- You can set groups as global filter.

There are no groups for quotations, as codes already fulfil this function. Codes group quotations that have a similar meaning. Therefore instead of groups, you see the codes in the side panel of the Quotation Manager.



Application of Docume

Video Tutorial: Organizing documents and document groups. Often data come from different sources, locations, respondents with various demographic backgrounds etc. To facilitate the handling of the different types of data, they can be organized into document groups. You can also use document groups for administrative purposes in team projects if different coders should code different documents. You can then create a group containing all documents for coder 1, another group containing the documents for coder 2 and so on.

Video Tutorial: Organizing project data - Creating document groups
Another application is the use of document groups for analytic comparisons in the Code Document Table.

Document groups can also be added to Networks and you can show which codes have been applied to which group.

Application of Code Groups

Code groups can be used to sort and organize codes in the Code Manager. Code groups facilitate the navigation of codes in the Code Manager as local filter. See below. Code groups can be used as global filters in analysis.

Code groups can also be used in the Code Document Table for case comparisons.

Users often mistake code groups as a kind of higher order code, which they are not. They do however can be quite useful in building a coding system.

Application of Memo Groups

Memo groups come in handy if you have written lots of memos. You could for example group memos by function: methodological notes, team memos, research diaries, analysis.

If you have multiple memos that contain answers to one research question, you can group all those memos.

If you have multiple memos that contain input for a particular section in the research report, you may want to create a memo group for those.

You find more information on working with memos here: Memos and Comments.

Groups as Filters

Groups are listed in the side panels of the document, code, memo and network manager.

> Click on one or more groups to filter the list of items. If you want to select multiple groups hold down the Cmd key.
> Once you have set one or more groups as filter, a yellow bar appears above the entity list indicated that a) a filter has been set, and b) which one.

> To reset the filter to see all entities again, click the **minus (-)** on the top right-hand side of the yellow bar.
> It is also possible to run simple AND and OR queries:

As soon as you select more than one group, you see the word **any** in blue in the filter bar. This means the default operation is to combine the items of the selected groups with OR.

> If you want to filter by the intersection of two or more groups, click on the word "any" and change it to **all**. This is the Boolean AND operator.

An example would be to filter by all female respondents who live in an urban region. This requires that you have grouped the documents by these two criteria:

- gender::female
- region::urban

The filter would then show the following text: Show documents in **all** of the groups: gender::female, region::urban. The same options are available for all entity types.

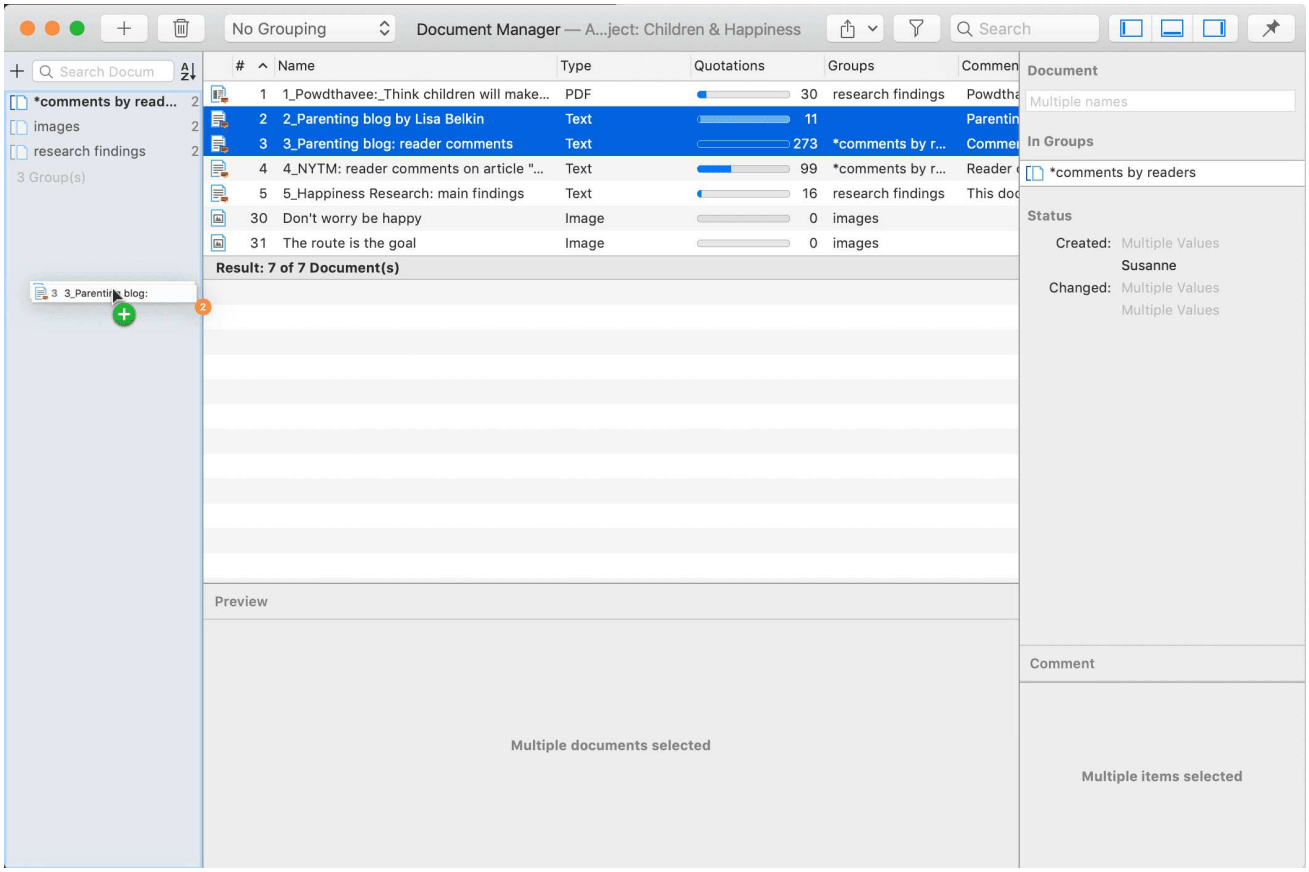
Creating and Renaming Groups

You can create groups in various ways and at various places in the software.

Creating Groups in a Manager

> Open the Document Manager, e.g. by double-clicking on the **Documents** branch in the Project Explorer, or by selecting Document Manager from the Documents drop-down menu in the toolbar.

> Select several documents and drag-and-drop them into the side panel on the left. You can use the common selection technique by holding down the Cmd- or Shift key. ATLAS.ti automatically creates a group and assigns a name. Left-click the name to modify it.



Another way to create groups in a manager is:

> To select a number of entities in a manager, right-click and select the option **Group Documents / Codes / Memos / Networks** from the context menu. ATLAS.ti creates a group assigns a name and opens the respective Group Manager. Change the default name, so it fits your purposes.

Creating Groups in the Project Explorer

> Select a number of entities in a branch of the Project Explorer, right-click and select the option **Create Group** from the context menu. Enter a name and click **Create**.

Creating Groups in a Group Manager

> Open the Group Manager by selecting it from the drop-down menu of the respective entity in the toolbar. Alternatively, you find a **Show Group Manager** option under the main Document / Code / Memo and Network menu.

> To create a new group, click on the + button and enter a name.

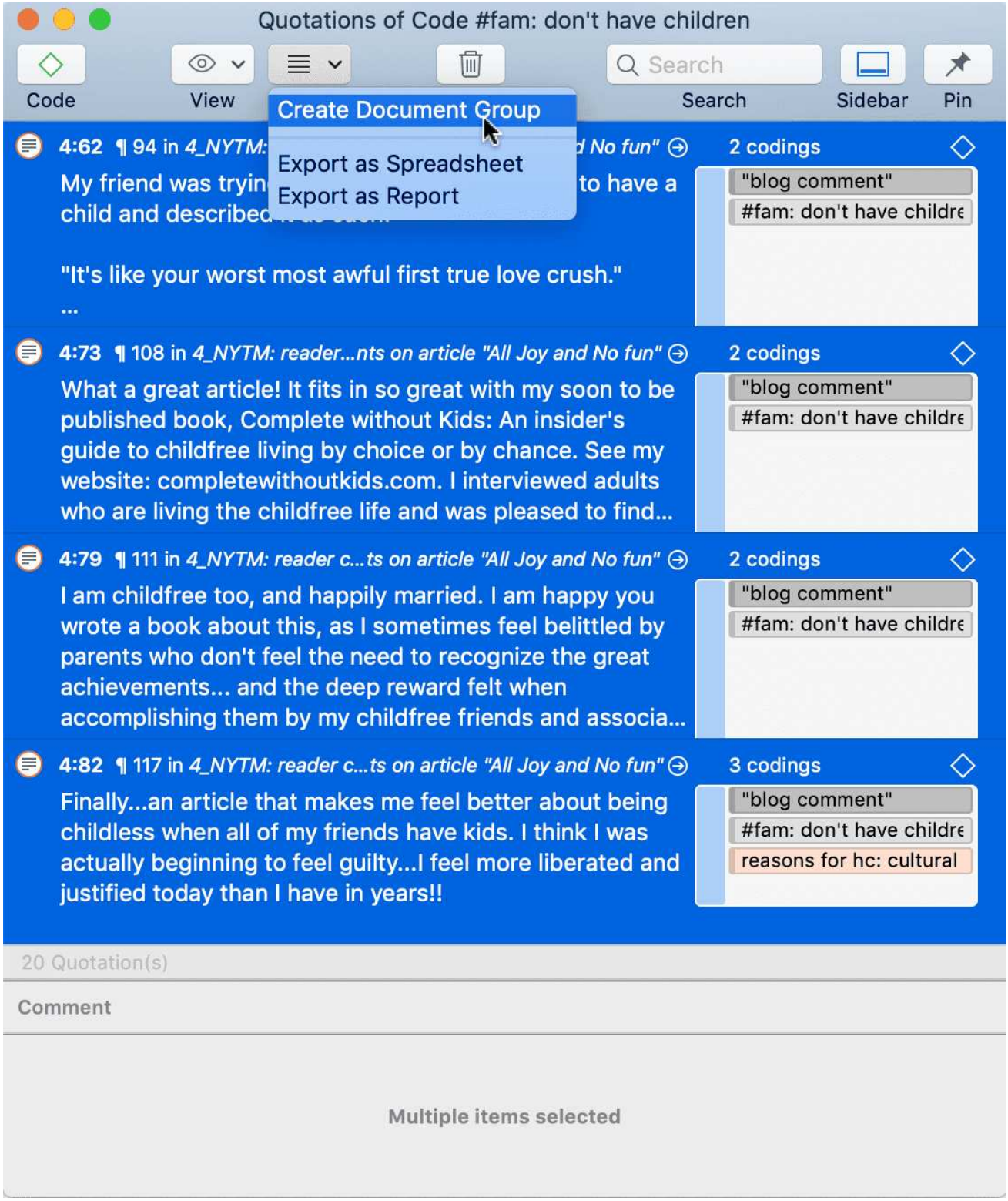
> Next select on ore more items in the pane: **'Not in Group'** and move them to the left-hand side **'In Group'** by clicking on the button with the left arrow (<). You can also double-click each item you want to move.

Creating Document Groups in a Quotation Reader

At times, you first need to code the data to find relevant information like years of working experience, special skills, attitudes about something, relationship to other people, etc. For this you need an option to create document groups based on query results.

You can create document groups based on any data you retrieve. This can be a simple query like double-clicking on a code, based on a query in the Quotation Manager or Query Tool, or results of the Code Document or Code Co-occurrence Table.

> Click on the Options button in the Quotation Reader and select **Create Document Group** from the drop-down menu.



Renaming a Group

> Select a group in a Manager or a Group Manager, left-click and rename it; or rename it in the inspector on the right-hand side.

Deleting Groups

Removing Group Members

You can remove group members at four different locations:

Project Explorer

> Open the branch for a group, select one or more items that you do not want to have in the group, right click and select **Remove from Group** from the context menu.

In Managers

> Open a Manager and select a group.

> Select one or more items in the list that you do no longer want to have in the group, right click any of the selected items and select **Remove from Group** from the context menu.

Filter Area in Managers

> Open a Manager and select a group.

> Select one or more items in the list that you do no longer want to have in the group, right-click on the group in the filter area and select **Remove from Group** in the context menu.
> Removing Group Members in the Group Manager

> Open the Group Manager by double-clicking on a group in the Project Explorer.

Alternatively:

> Find **Show Group Manager** option under the main Document / Code / Memo and Network menu.
> inst
> Next select on ore more items in the pane: **'In Group'** and move them to the right-hand side **'Not in Group'.**

> ## Deleti
>
> Select one or more groups in the Project Explorer or in the filter area of a manager.
> inst
> Right-lick and select **Delete** from the context menu.

It is also possible to delete one or multiple groups in a Group Manager.

Importing & Exporting Document Groups

You can export and import the list of documents and their groups to and from Excel.

Exporting the data gives you an overview of all your document groups and their members. It can also be used as a starting point to prepare an Excel file for import.

You may want to import a Document Group table, if you already have an Excel file with information about each document like gender, education levels, location, etc.

The content of the **Document Group Table** consists of the following:

- First column: document name.
- Second and subsequent columns: document groups or document attributes

As document groups in ATLAS.ti are dichotomous, the document groups are listed in the columns, and the cells contain a 0 if the document is not in the group, and a 1 if the document is in the group.

If you do not follow the ATLAS.ti naming conventions (see below), the table will look as follows:

	A	B	C	D	E
1	Document Name	images	online data	reader comments	research findings
2	1_Powdthavee:_Think children will make you happy?	0	0	0	1
3	2_Parenting blog by Lisa Belkin	0	1	0	0
4	3_Parenting blog: reader comments	0	1	1	0
5	4_NYTM: reader comments on article "All Joy and No fun"	0	1	1	0
6	5_Happiness Research: main findings	0	0	0	1
7	Don't worry be happy	1	0	0	0
8	The route is the goal	1	0	0	0

If you use the ATLAS.ti naming convention for document groups: **attribute name::attribute label or value**, then ATLAS.ti uses the attribute name as column header and the attribute label or value for each cell. For instance, if you have the following groups:

- education::high school
- education::some college
- education::University degree
- gender::male
- gender::female
- has children::yes
- has children::no
- marital status: single
- marital status: married
- marital status: divorced
- number of children:1
- number of children:2

....the Excel table looks as follows:

	A	B	C	D	E	F
1	Document Name	#education	#Gender	#has children	#marital status	#number of children
2	case 1	highschool	male	yes	divorced	1
3	case 2	some college	female	no	single	
4	case 3	University degree	female	yes	divorced	2
5	case 4	highschool	male	yes	married	2
6	case 5	some college	male	yes	divorced	2
7	case 6	some college	female	no	single	
8	case 7	University degree	male	yes	married	2
9	case 8	highschool	female	yes	married	1
10	case 9	some college	male	no	single	
11	case 10	University degree	male	yes	divorced	2
12	case 11	highschool	female	yes	married	2
13	case 12	some college	female	yes	married	1

Exporting Document Groups to Excel

> Select **Document** > **Export** > **Document Groups.** Select a location for saving the Excel file. Accept the default name or change it. Select **Save**.
> tip
> If you use the naming convention for document groups as shown above, then the table shows the more conventional format with attributes / variables as column header and the various values for each variable in the table cells.

Importing Document Groups from Excel

If you want to prepare a table for import, the easiest way is to export a table first. This way you generate a table that already contains all document names in the order as they occur in ATLAS.ti

> Export a document group table (see above).

> Add the document attributes as column headers.

- If there are multiple values for an attribute, add the prefix ´#´.
- If you do not add a prefix, a document is assigned to the group if the cell value is 1.

> Enter the values for each document in the table cells.

- if there is no entry in a cell, the document is not assigned to a group.
- if two or more values of the same attribute apply to the document, then enter the values separated by a coma.

In the following you see two examples:

Document Name	#gender	#age group	likes chocolate	#favorite drink
doc 1	male	1	1	cola
doc 2	female	2		milk,beer
doc 3	female	2	1	juice
doc 4	male	1		tea, coffee, cola
doc 5	male	3	1	coffee

Save the table in Excel.

Example Excel table ready for import to ATLAS.ti:

Document Name	#Type	Phase 1	#coder	#Gender	#Location
article: Powdthavee_The Psychologist	article	1	Tom		
article: Summary of research findings on happiness	article	1	Tom		
image: The way to get there is the goal	image		Lisa		
int: f_16_rural_SHAZIA	interview		Lisa	female	rural
int: f_16_urban_DEBORAH	interview		Anne	female	urban
int: m_17_rural_TREVOR	interview		Lisa	male	rural
int: m_18_urban_ALEXANDER	interview		Lisa	male	urban
web: Belkin blog_discussion	web	1	Anne		
web: blog_Belkin_comments on Powdthavee	web	1	Tom		
web: NYTM_ discussion of article "All Joy and No fun"	web	1	Tom		
video_Remote Learning	video	1	Anne		
video_ Face-to-Face Learning	video	1	Anne		

Importing the Table

Close the table in Excel before importing.
inst
Select **Document** > **Import** > **Document Groups.** Select the Excel file and click **Open**.
tip
If you want to add new groups even though a few groups already exist, you can proceed as described. Just leave existing groups in the table. ATLAS.ti will recognize them and does not create them anew.

The ATLAS.ti Quotation Level

Video Tutorial: Working with Quotations
Christine Silver, expert in computer assisted qualitative data analysis software, explains the ATLAS.ti quotation level as follows:

> "When you create a quotation, you're marking a segment of data that can later be retrieved and reviewed. You might know, right at that point how and why it's interesting or meaningful, in which case you can immediately capture that – by re-naming it, commenting on it, coding it, linking it to e.g. another quotation, or a memo. If you don't yet know, you can just create the quotation, and come back and think about it later, perhaps when you have a better overview of the data set in its entirety and are ready to conceptualise meaning in relation to your research objectives."
>
> "One of my favourite things about ATLAS.ti is that quotations can be visualised and worked with in a graphical window, i.e., the ATLAS.ti networks. The content of quotations can be seen within the network, and quotations can be linked, commented upon, and coded in that visual space. This is very useful if you like to work visually or are used to analysing qualitative data manually with highlighters, white-boards, post-it notes etc. Networks can also be used as visual interrogation spaces – for example to review quotations which have more than one code attached, which is very powerful. Everything you do in the network is connected throughout the ATLAS.ti project."

The ATLAS.ti quotation level offers an extra layer of analysis. In ATLAS.ti you are not required to immediately code your data as in most other CAQDAS software. You can first go through your data and set quotations, summarize the quotations in the quotation name and write an interpretation in the comment field. See Working with Quotations. This is useful for many interpretive analysis approach for the process of developing concepts. Once you have ideas for concepts you can begin to code your idea.

This prevents you from falling into the coding trap, i.e. generating too many codes. Codes that can be applied to only one or two segments in your data are not very useful. Code names should be sufficiently abstract so that you can apply them to more than just a few quotations.

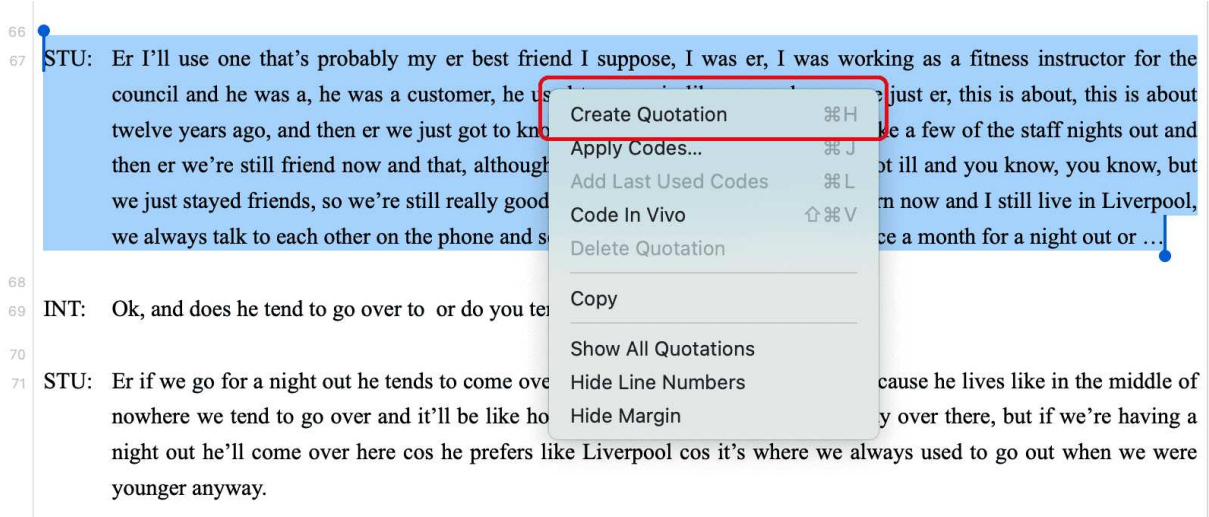
You will also see later in the analysis process that you find that none of the further analysis tools like the Code Document Table or the Code Co-occurrence Table seem to be very useful.

If you find yourself generating 1000 or more codes, take a look what you can do with quotations instead. Based on that develop codes on a more abstract level allowing you to build a well-rounded code system.

Creating Quotations in Text Documents

When you code data, quotations are created automatically. See Coding Data.You can however also create quotations without coding. To do so:

> Highlight a section in your text, right click and select the option **Create Quotation**. Alternatively, you can also use the shortcut **cmd+H**.



Once a quotation is created, you see a blue bar in the margin area and an entry in the Quotation Manager and the Document tree in the Project Explorer.

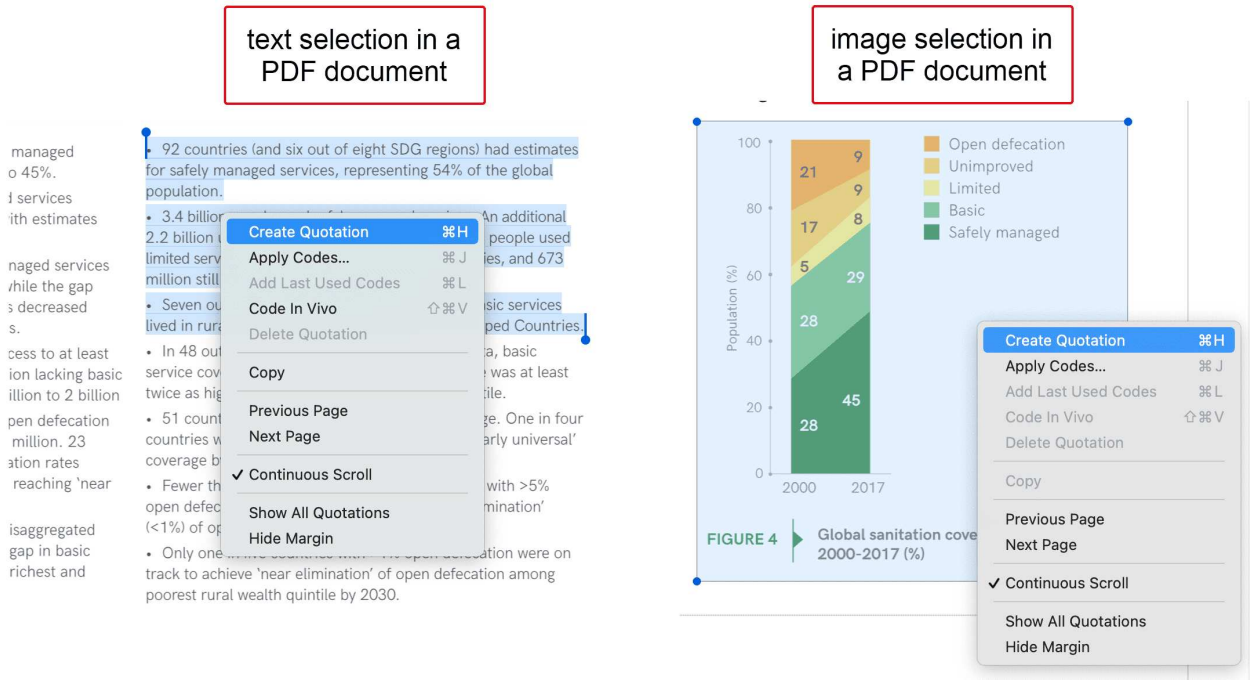
Creating Quotations in PDF Documents

A text PDF file can contain images as well, like picture, graphs or tables. In ATLAS.ti you can create quotations for text and images in PDF documents.

Text selection: Select the text just like you do in a Word file. Make sure that you place the cursor right next to a letter.

Selecting a graphical element: Like selecting an area in a graphic file, draw a rectangular area with your mouse. See also Creating Graphic Quotations.

> Select a segment in the PDF document, right click and select the option **Create Quotation**. AAlternatively, you can also use the shortcut **cmd+H**.

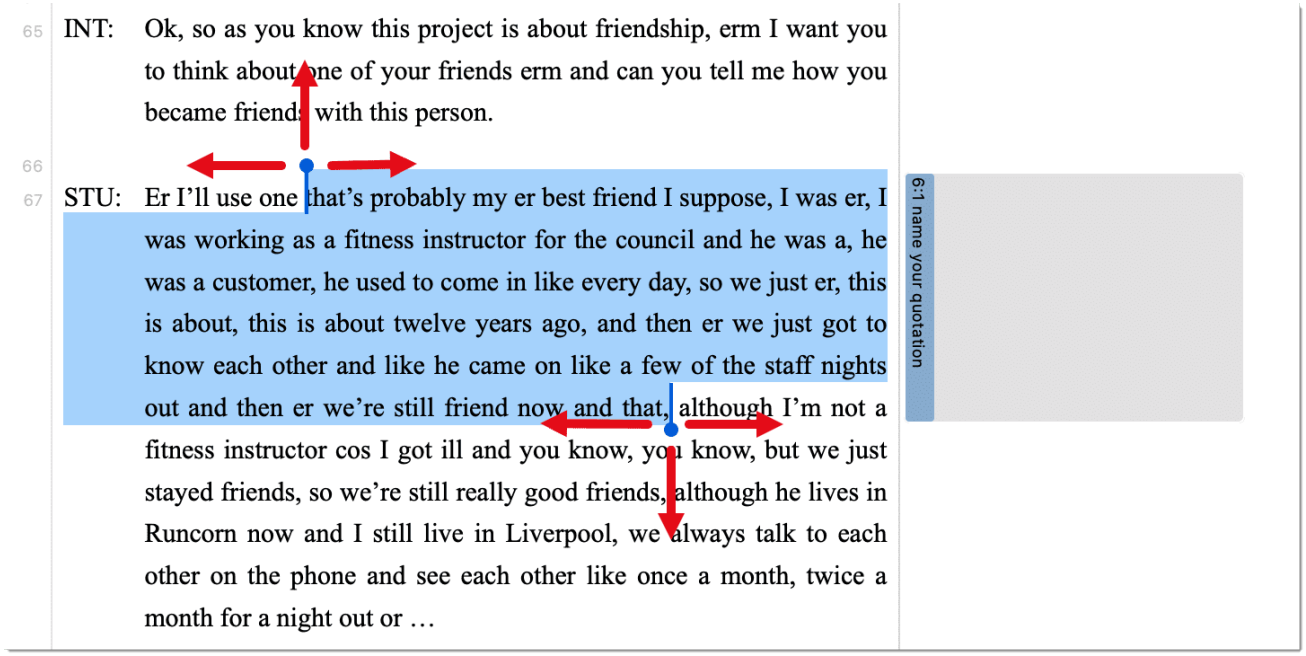


PDF files can be text or image files. Sometimes users accidentally add an image PDF and wonder why they can only create graphic quotations and cannot select text. If this happens, you need to re-create the PDF file, e.g. by letting an OCR scanner running over your PDF image file. In a lot of PDF creators these days this is an option in the software, no additional physical scan is needed.

Modifying Quotation Boundaries

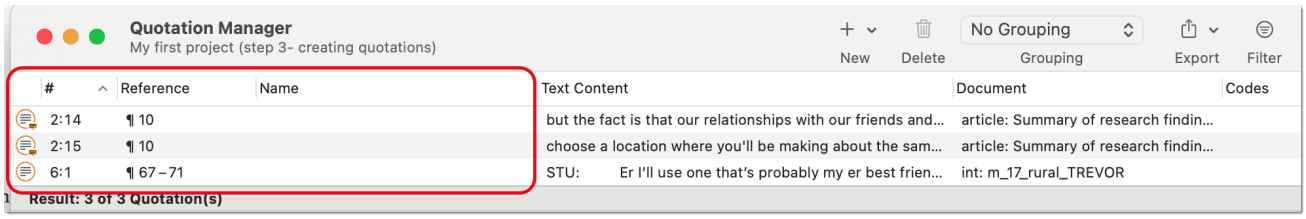
Modifying the length of a quotation is easy.

> If you select a quotation, e.g. by clicking on the bar in the margin area, you see a blue line with a dot at the beginning and at the end of the quotation. Move the start or end position to a different location depending on whether you want to shorten or lengthen the quotation. This applies to all media types.



Quotation ID and Reference

Each quotation has an ID, which consists of two numbers:



The ID 2:15 for example means that the quotation comes from document 2, and it is the 15th quotation that was created in this document. It is located in the 10th paragraph. Quotation 6:1 comes from document 6; it is the first quotation created in document 6 and can be found in paragraph 67-71.

Quotations are numbered in chronological and not in sequential order. If you want to change this order, see Working with Quotations.

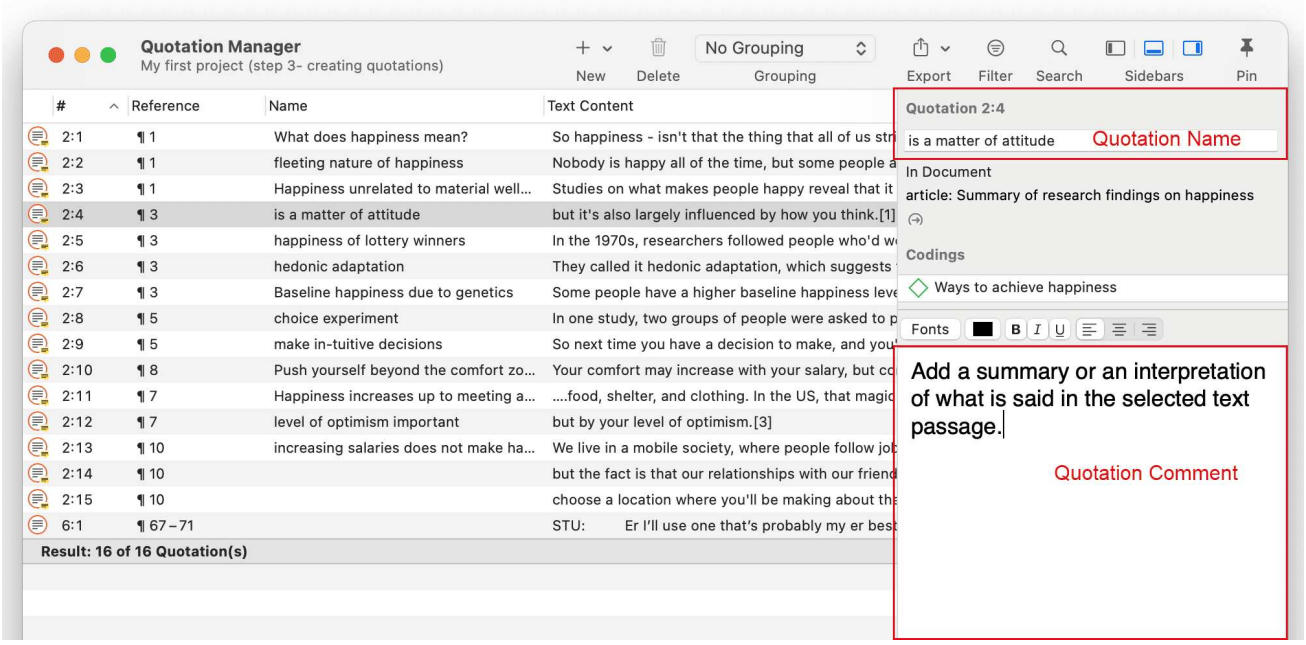
Adding Quotation Names and Writing Comments

Being able to name each quotation has a number of useful applications.

- It allows you to quickly glance through your quotations in list view.
- You can use the name field to paraphrase a quotation as required by some content analysis approaches, or to write a short summary.
- You can use the name field for fine-grained coding (line-by-line Grounded Theory coding; initial coding in Constructive Grounded Theory, or as required by other interpretative approaches) instead of applying codes. If you already apply codes during this phase, you will

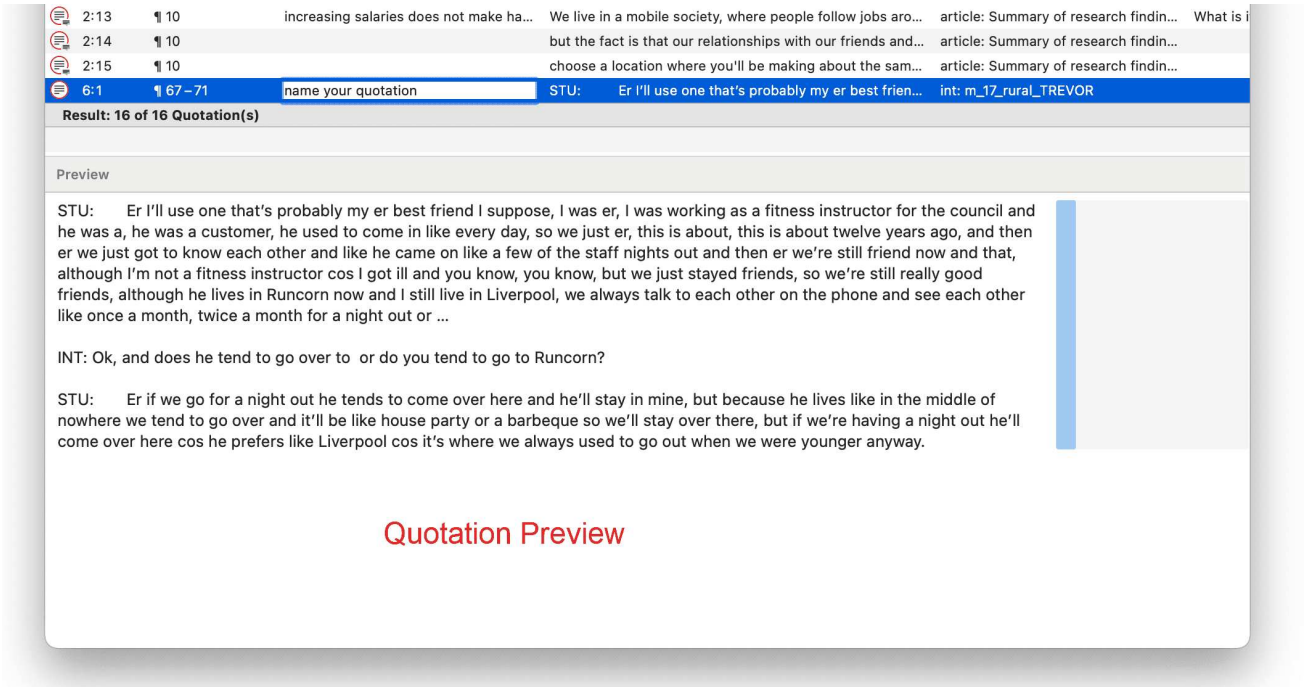
end up with too many codes that are useless for further analysis. See Building a Code System.

- Adding titles to multimedia quotations. See Working with Multimedia Data.



> To add a name to a quotation, select it and left-click the name field, or add a text to the name field in the inspector on the right-hand side. You can write further information about the quotation like a summary or interpretation in the comment field that you also find in the inspector.

If you select a quotation in the Quotation Manager, you see a preview of the quotation in the panel below the quotation list. This applies to all data file formats.



How to create quotations in audio and video documents, see Creating Multimedia Quotations.

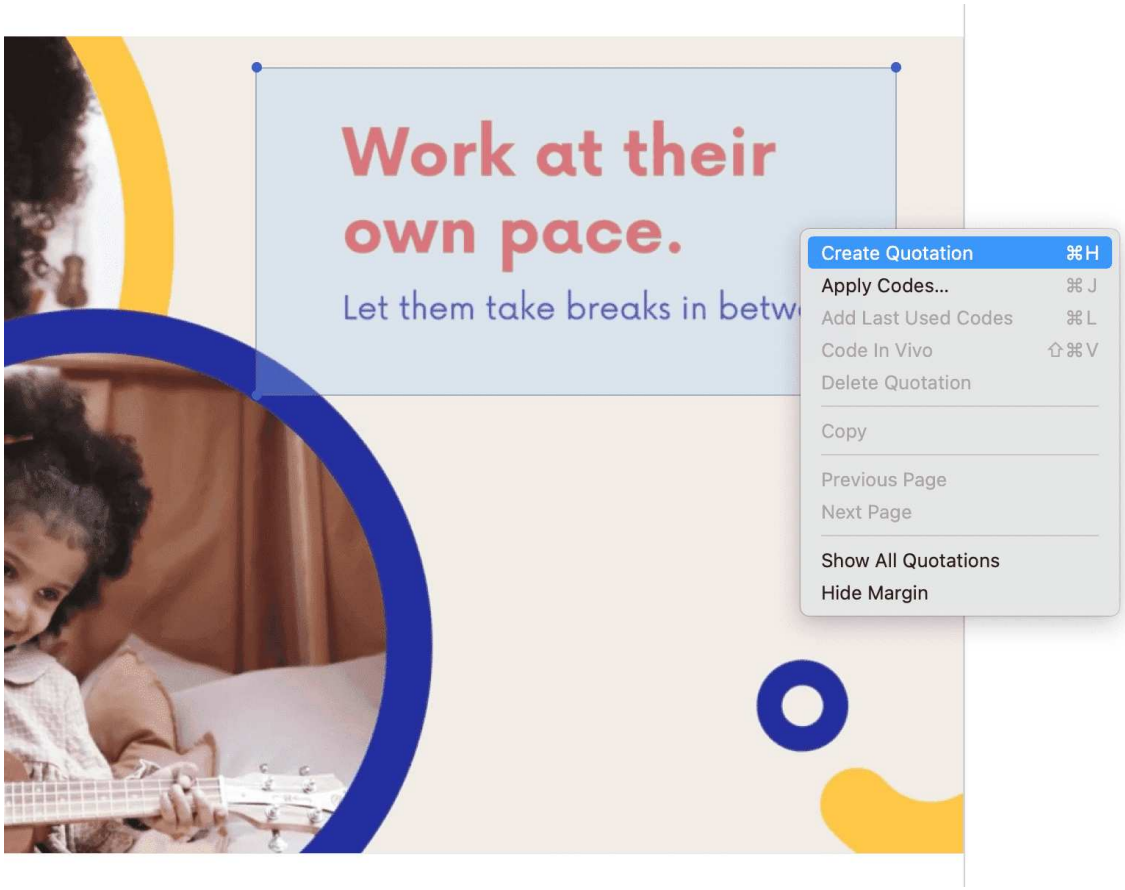
How to create quotations in image documents, see Creating Image Quotations.

Creating Quotations in Image Documents

If you work with pictures, video or geo snapshots, or PDF image documents:

> Move the mouse pointer to the upper left corner of the rectangular section that you are going to create, hold down the left mouse button and drag the mouse to the lower right corner of the rectangle. Release the mouse button. You have now created a selection, and the rectangle will be highlighted.

> Right click and select the option **Create Quotation**. Alternatively, you can also use the shortcut **Cmd+H**.



inst
To modify an image quotation, just re-size the rectangle.

We recommend adding a name to each image quotation as title or description. This facilitates further analysis.

> You can preview graphical quotations in the Quotation Manager; they can be inserted into networks, and they are included as graphical snippets in reports.

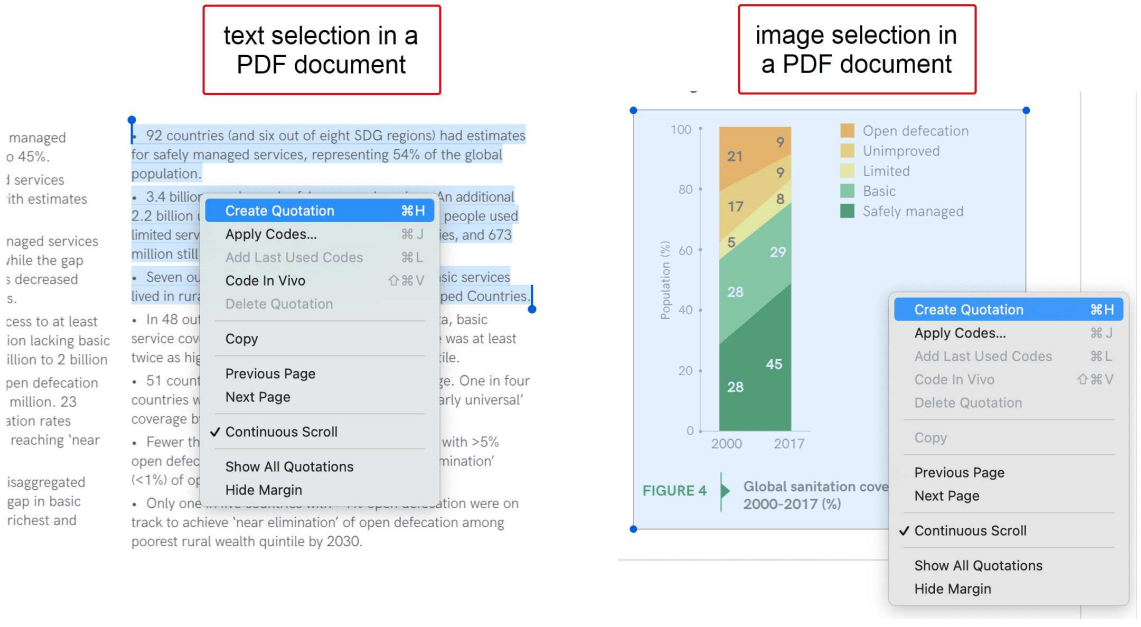
Creating Quotations in PDF Documents

A text PDF file can contain images as well, like picture, graphs or tables. In ATLAS.ti you can create quotations for text and images in PDF documents.

Text selection: Select the text just like you do in a Word file. Make sure you place the cursor right next to a letter.

Selecting a graphical element: Like selecting an area in a graphic file, draw a rectangular area with your mouse. See also Creating Graphic Quotations.

> Select a segment in the PDF document, right click and select the option **Create Quotation**. Alternatively, you can also use the short-cut **Cmd+H**.



> PDF files can be text or image files. Sometimes users accidentally add an image PDF and wonder why they can only create graphic quotations and cannot select text. If this happens, you need to re-create the PDF file, e.g. by letting an OCR scanner running over your PDF image file. In a lot of PDF creators these days this is an option in the software, no additional physical scan is needed.

Working with Multimedia Data

In this section, the following options are discussed:

- Creating multimedia quotations
- Creating multimedia quotations while listening to the audio file or viewing the video file
- Display of multimedia quotations
- Coding multimedia quotations
- Activating and playing multimedia quotations
- Adjusting the size of multimedia quotations
- Renaming a multimedia quotation
- Capturing video snapshots as image documents for further analysis

Creating Multimedia Quotations

You can also immediately code multimedia files. However, as especially video files contain so much more information as compared to text, it is often easier to first go through and segment the audio or video file, i.e. creating quotations before coding.

> To create an audio or video quotation, move your mouse pointer on top of the audio waveform and mark a section by clicking on the left mouse button where you want it to start. Then drag the cursor to the end position. The times of the end and start positions are shown, as well as the total length of the segment.

As soon as you let go of the mouse, a quotation is created, and you see the blue quotation boundary in the margin area

Creating Multimedia Quotations while Listening / Watching

> You can also create an audio or video quotation while listening to or viewing a document. For this, you can use the buttons **Mark Quotation Start** and **Create Quotation** buttons in the toolbar above the timeline; or the short-cut keys (see below).
> inst
> Continue with listening or watching, and setting quotations.
>
> ### Using Short

To mark the start position: use (<) or (,)

To create a quotation: use (>) or (.)

Which short-cut key to use depends on your keyboard. Use those keys where you do not have to use Shift.

> Play the video. If you find something interesting you want to mark as a quotation, click on the (,) or the (<) key. This sets the start position.

> To set the end position and create a quotation, click on the (.) or (>) key.

- A new quotation will be listed in the Quotation Manager, the Project Explorer or Quotation Browser. The quotation ID consists of the number of the document plus a consecutive count in chronological order by time when a quotation was created in the document. The quotation ID 15:5 for examples means that this is a quotation in document 15, and it was the 5th quotation that was created in the document.
- After the ID you see the quotation reference, which is the start position of the audio or video quotation. The name field is empty. You can for instance add a short title for each multimedia quotation, see below.
- Depending on the media type, the quotation icon changes.

Audio and video quotations can be easily recognized by their special icon.

Coding Multimedia Quotations

Coding multimedia quotations is not different from coding text or image documents:

> Right-click the quotation and select **Apply Codes.** For further information see: Coding Data.

Activating and Playing Multimedia Quotations

In the Margin Area

> To play the quotation, double-click on the quotation bar, or hoover over the audio waveform with the mouse and click on the **play** icon.

You can move the play-head to any position within an audio or video file by scrolling.

From other Places

- When you double-click on a multimedia quotation in the Project Explorer, the Quotations Browser or the Quotation Manager, the multimedia document opens at the position where the quotation starts. Click on the space bar to play it.
- You can preview a multimedia quotation in the preview area of the Quotation Manager or the Quotation Reader.
- You can preview a multimedia quotation in a network.
- You can preview a multimedia quotation if it is part of a hyperlink. See Working with Hyperlinks.

Adjusting the Size of Multimedia Quotations

> To adjust or change the length of the quotation, drag the start or end position to the desired position.

Renaming a Multimedia Quotation

If you add names to multimedia quotation, they can serve as titles. Short summaries can be added to the quotation comment. This allows you to create a meaningful text output for audio and video segments.

> Select a multimedia quotation and add a name in the inspector.
> Use the comment area to add further information, e.g. describe the segment and offer a first interpretation

See also Making Use of Quotation Name and Comment for Analytical Purposes.

Capturing Snapshots of Video Frames as Image Documents

If you want to analyze particular frames of your video in more detail, you can capture a snapshot.

> Move the play head to the desired position in the video.

> Click on the **camera** icon in the toolbar.
> The snapshot is automatically added as a new image document to your project. See Creating Quotations im Images for further information on how to work with image files.

Working with Quotations

Video Tutorial: Working with quotations.

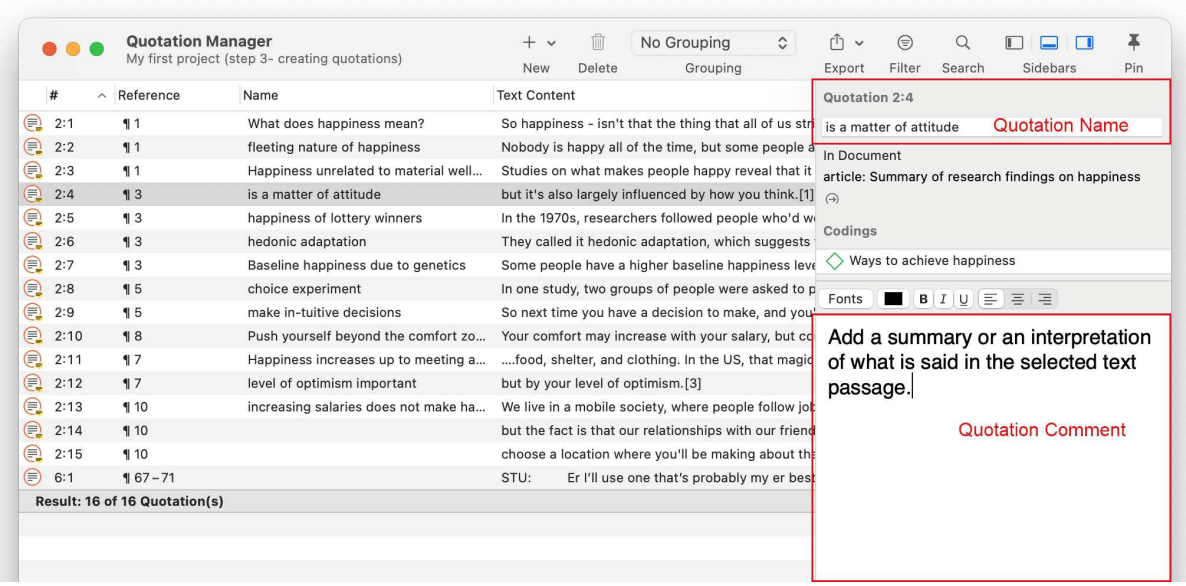
Making Use of the Quotation Names and Comments for Analytical Purposes

You can use the quotation name field for paraphrasing or summarizing the content of textual quotations, as a title for video and image quotations, or for entering the location for geo quotations.

The quotation name can also be used for instance for the phase of line-by-line coding in Grounded Theory, or for initial coding in Constructive Grounded Theory, or for other inductive approaches. Instead of generating too many codes on a descriptive level, the quotation name can be used for this type of coding.

To make use of this functionality, open the inspector in the sidebar.

> After you have created a quotation, enter a text in the name field in the inspector. If you have created a quotation and coded the quotation at the same time, select the quotation bar in the margin, so that the quotation is shown in the inspector.
> tip
> Further interpretations can be written into the comment field of the quotation. You can also add and modify quotation names and add comments in the Quotation Manager.



Reviewing Coded Quotations and Modify Coding

tip
Video tutorial: Retrieving coded data
There are several ways how to review coded quotations:

- Double-click on a code anywhere. This opens the Quotation Reader - or gives an option to open the Quotation Reader.
- Open the Quotation Manager and select a code in the side panel.
- Create a query in the Query tool, a Code Document Table, or a Code Co-occurrence Table and review quotations in the result lists.

Displaying Quotations in Context

Displaying quotations in context means that you can view a quotation that is listed in a browser or a list in the context of the original data.

- Double-click on an entry in the Quotation Manager.
- Click on the quotation bar in the margin area.
- Double-click on the quotation in the Document sub-branch in the Project Explorer.
- Once you have coded data, quotations can also be retrieved via their codes. See Quotation Reader.
- Quotations can be activated in networks. See Working With Networks.
- Quotations can be activated from a result list of a project search (see Project Search).

Deleting Quotations

> To delete a single quotation, right-click on a quotation and select the **Delete** option from the context menu.

This option is available in all browsers, windows and lists where you see quotations, i.e. the Project Explorer, the Quotation Reader, the Quotation Manager, in a network, or the margin area.

Deleting a quotation does not delete the data itself. Think of quotations like a layer on top of your data. Deleting this layer does therefore not delete the underlying data. However, all other existing links like links to codes, memos or hyperlinks will be removed when deleting a quotation.

Referencing Quotations

It may be useful to reference quotations in your memos or comments, or in documents you write in other apps.

You can do all of that by simply copying a quotation from anywhere, and pasting them into your text. Drag and drop will also work. And in a memo or document, you can also just hover over the paragraph numbers and click the button that appears there to pick quotations to insert.

When inside a text document, ensure you copy the quotation and not just the text by right-clicking the quotation in the margin.

The quotations that you insert in this way include the full text, reference, and a clickable link that will open the quotation in its document, so you can see it in context. This even works from outside ATLAS.ti!

When collaborating in a team, you can also send your colleagues a link to a quotation by pasting it into your messaging app of choice – provided they have a copy of the same project on their computer that contains that quotation.

Changing the Chronological Order of Quotations

The quotation ID numbers quotations in the chronological order when they have been created. For various reasons, at times users want the quotations to be numbered in the sequential order as they occur in the document.

When you delete quotations, the numbering is not automatically adjusted. Instead, they are gaps. Renumbering the quotations also closes those gaps.

To renumber quotations:

> From the main menu select Documents > Renumber Documents and Quotations.

Coding Data - Basic Concepts

"Coding means that we attach labels to 'segments of data' that depict what each segment is about. Through coding, we raise analytic questions about our data from [...]. Coding distills data, sorts them, and gives us an analytic handle for making comparisons with other segments of data" (Charmaz, 2014:4).

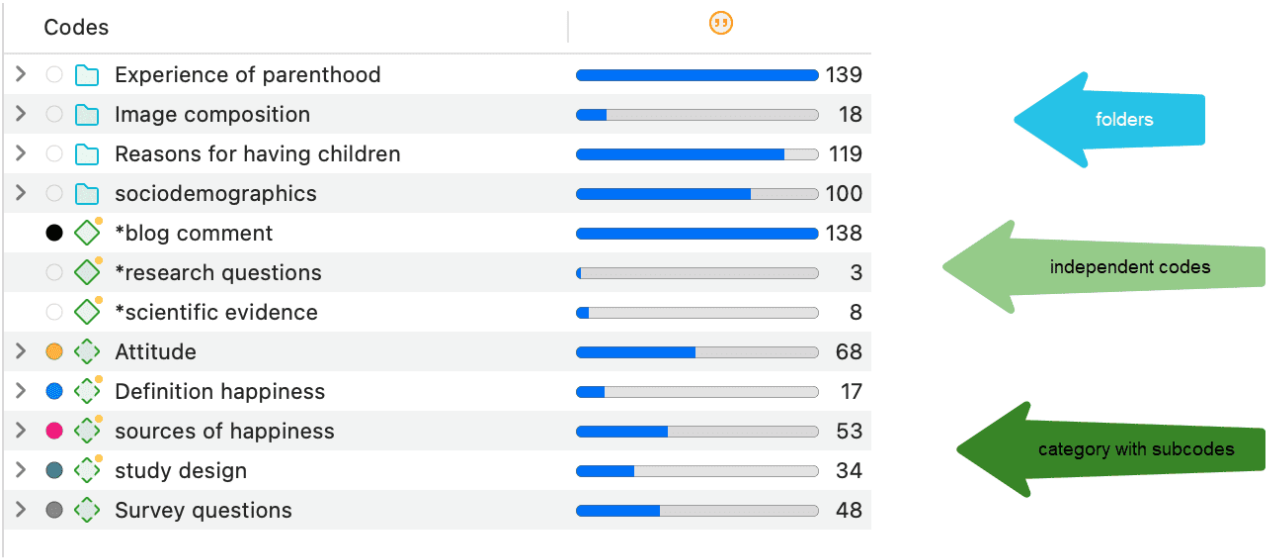
"Coding is the strategy that moves data from diffuse and messy text to organized ideas about what is going on" (Richards and Morse, 2013:167).

"Coding is a core function in ATLAS.ti that lets you "tell" the software where the interesting things are in your data. ... the main goal of categorizing your data is to tag things to define or organize them. In the process of categorization, we compare data segments and look for similarities. All similar elements can be grouped under the same name. By naming something, we conceptualize and frame it at the same time" (Friese, 2019).

Independent Code / Category Code / Subcode

With ATLAS.ti 22, we introduced new ways to organize your codes in the code system. If you do not have the need to organize your code into a hierarchy of higher and lower order codes, you can work with *independent codes*. If you want to create a hierarchy of codes, you can make use of category codes and subcodes. If some codes do not fit in any category, they can just remain independent codes.

An additional way to organize your codes are folders. You can add independent codes and categories with their subcodes to folders. Folders can also contain other folders.



Below each of these types are explained in more detail:

Independent code: If you start coding your data, and you begin with creating some new codes, those will be independent first level codes. They remain independent codes until you add them to a

category as subcode. The groundedness of an independent code is the number of quotations coded by it.

Free code: A free code is also an independent code, but one that has not (yet) been used for coding. Its groundedness is zero and it has no subcodes.

Category Code: A code becomes a category, when you drag & drop codes underneath it. These can be independent codes or subcodes that you move from a different category. The category itself does not code quotations. Therefore, you can only insert other codes as subcodes underneath if the code is not linked to quotations.

The reason for this is that via the category code you can retrieve all quotations from all sub codes. So, if you want an aggregated view of your data, just select the category. If you could apply the category code and its subcodes to the same quotations, you would get duplicated quotations. This is prevented by not allowing the category code to be used for coding.

The groundedness of a category code is the number of quotations coded by all of its subcodes. Since you can apply several codes to the same quotation, the total for a category can differ from simply adding up quotations for all subcodes. Both sums are only equal, if you use subcodes in a mutual exclusive manner, as for example required for inter-code agreement analysis

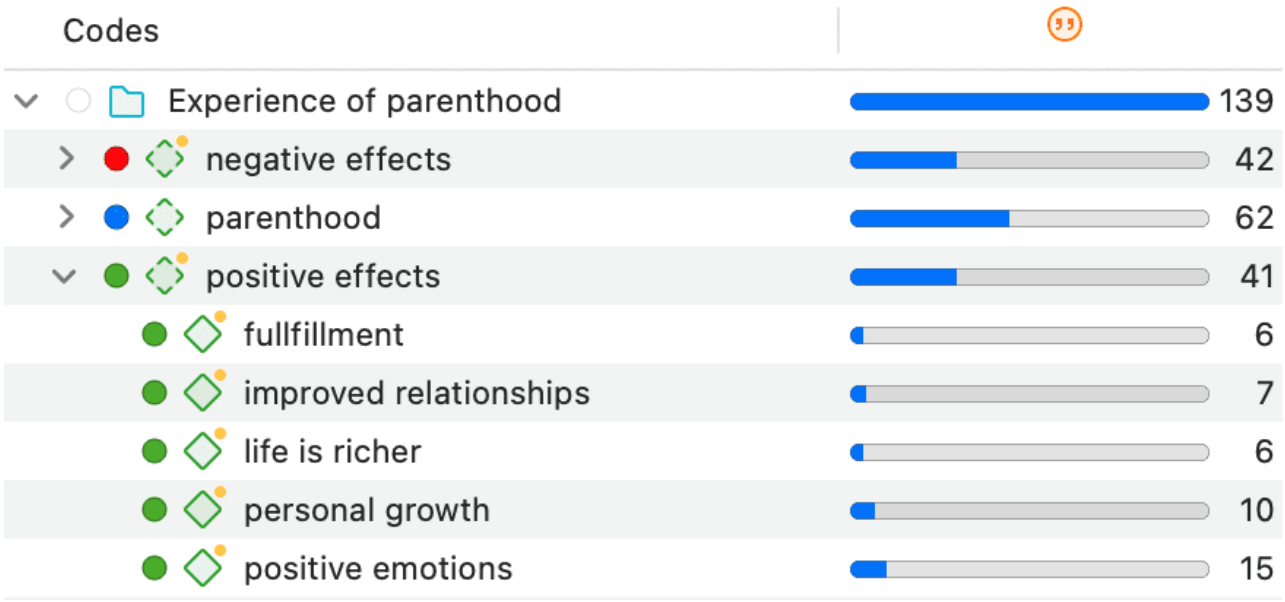
> For all previous ATLAS.ti users, because the category code can retrieve all quotations from its subcodes, the semantic operators SUB, UP and SIBLING are no longer needed and have been removed from the query tool.

Subcode: A subcode is a code that is sorted under a category code. No further subcodes can be created under subcodes. The reason for this is methodical rather than technical. Each code should only appear once in a code system. See: How to build a code system. If you use a deeper hierarchy, you will likely start duplicating and even multiplying codes at the lower levels. Not only does this make your code system long and difficult to maintain, it also prevents you from performing effective comparative analysis.

Folder: Folders help you organize your codes. You can move independent codes and categories with their subcodes into folders. A folder can also contain folders, as many as you want. Folders cannot be used to code data.

The number behind a folder, is the number of quotations coded by independent codes or sub codes that are contained within the folder. As you can apply multiple codes to the same quotation (i.e., multi-value coding), the total can be different from adding up all the numbers for all independent and all subcodes.

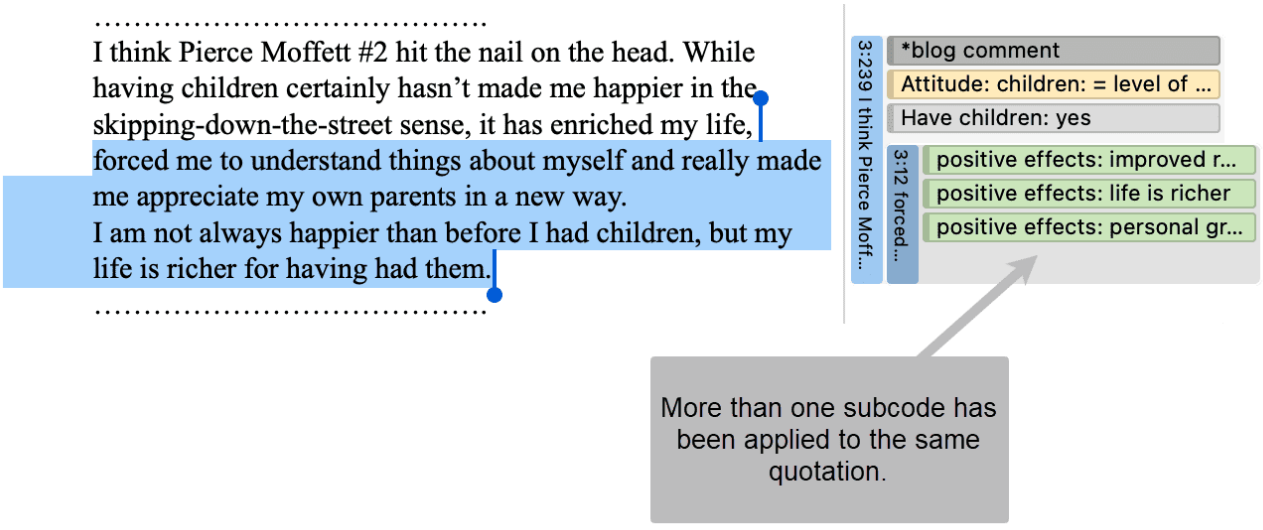
How Groundedness is Counted



Independent Code: The groundedness of an independent code is the number of quotations coded by it.

Category Code: The groundedness of a category code is the number of quotations coded by all of its subcodes. Since you can apply several codes to the same quotation, the total for a category can differ from simply adding up quotations for all subcode. Both sums are only equal, if you use subcodes in a mutual exclusive manner, as for example required for inter-code agreement analysis

The image above shows the category *positive effects*. Adding up the quotations coded by all subcodes, the sum is 44. The groundedness for the category however is 41. This means there are 3 quotations that are coded with more than one of the subcodes. This is illustrated in the image below:



Subcode: The groundedness of a subcode is the number of quotations coded by it. For example, the subcode *life is richer* is coding 6 quotations.

Folder: The groundedness of a folder is the number of quotations coded by independent codes or subcodes that are contained within the folder. As you can apply multiple codes to the same quotation (i.e., multi-value coding), the total can be different from adding up all the numbers for all

independent and all sub codes or categories. In the above example the folder *Experience of Parenthood* has a groundedness of 139 quotations. This is lower than the sum for the three categories contained in the folder (42 + 62 + 41 = 145). Again, this means that some quotations are coded by more than one of the codes in the folder. Counted are only unique quotations and not the number of codings.

How Density is Counted

The **code density** is unrelated to the code hierarchy and the number of codings. Density is defined as the number of linkages between two codes. You can link two codes to each other via drag-and-drop, or as recommended, in a network. See the chapter on networks for further information.

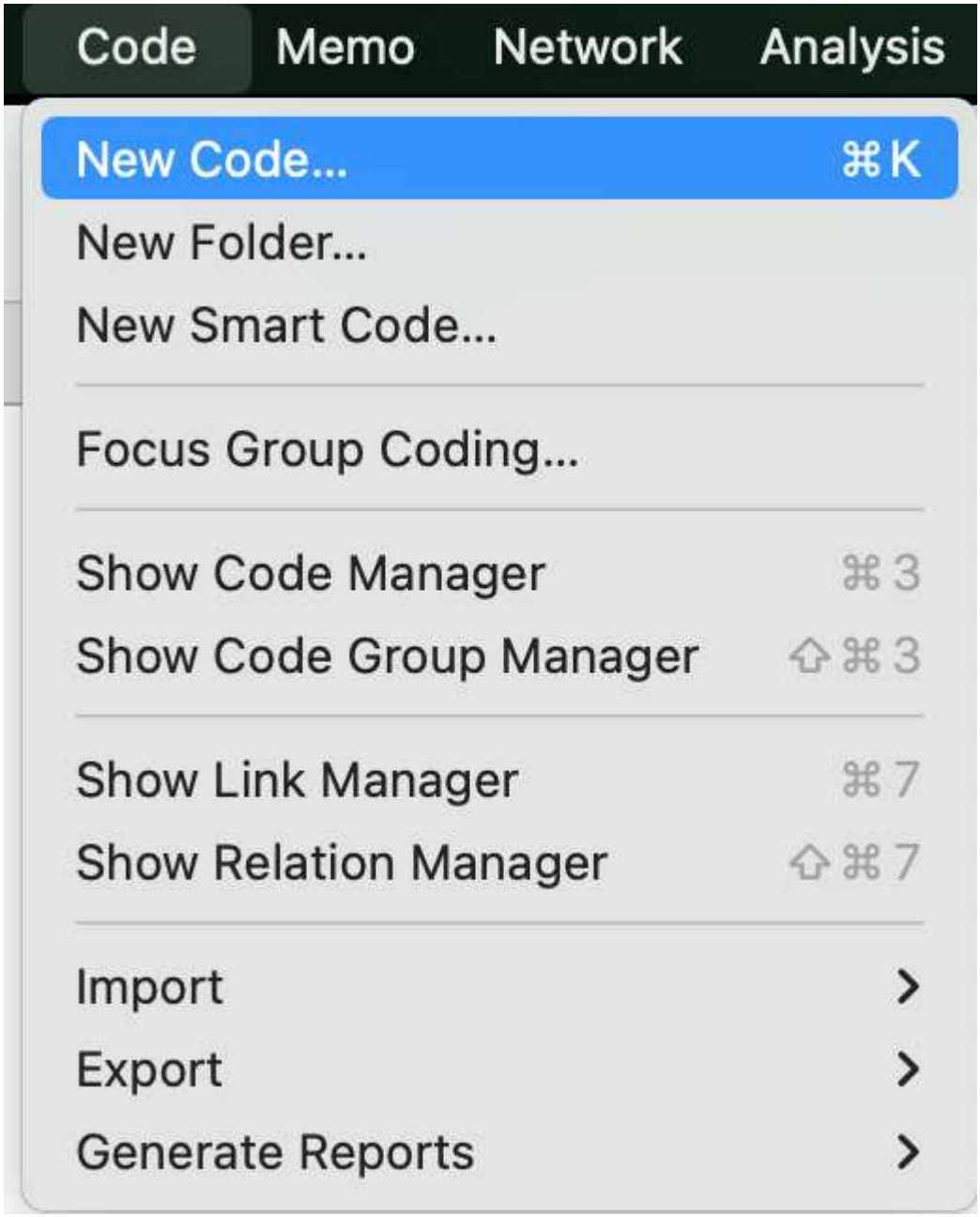
Creating and Applying Codes

Video Tutorial: How to code data.

Creating New Codes without Coding

You can create codes that have not (yet) been used for coding. Such codes are called "free" codes. See Coding Data - Basic Concepts. This can for example be useful when ideas for codes come to mind during normal coding work and that cannot be applied to the current segment but will be useful later. If you already have a list of codes, possibly including code descriptions and groupings elsewhere, you can use the option: Importing A List Of Codes.

> From the main menu, select **Code / New Code**. The short-cut key combination is **Cmd+K**.

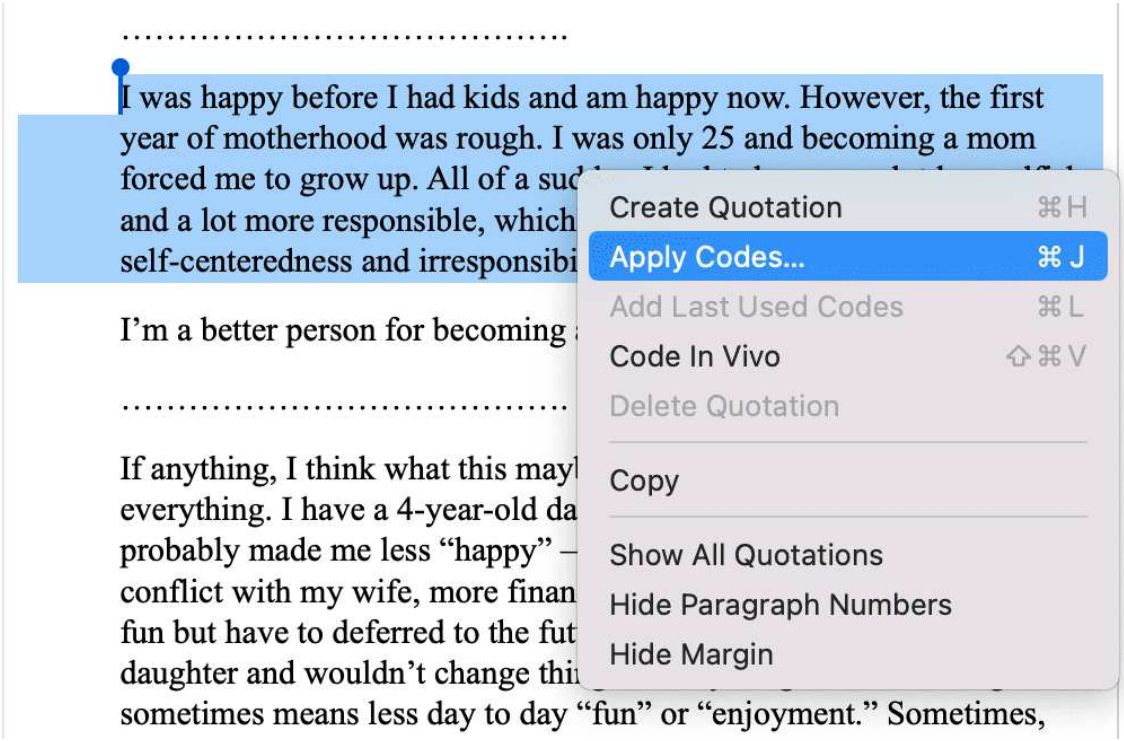


You can also create new codes in the **Code Manager by clicking on the + button.**

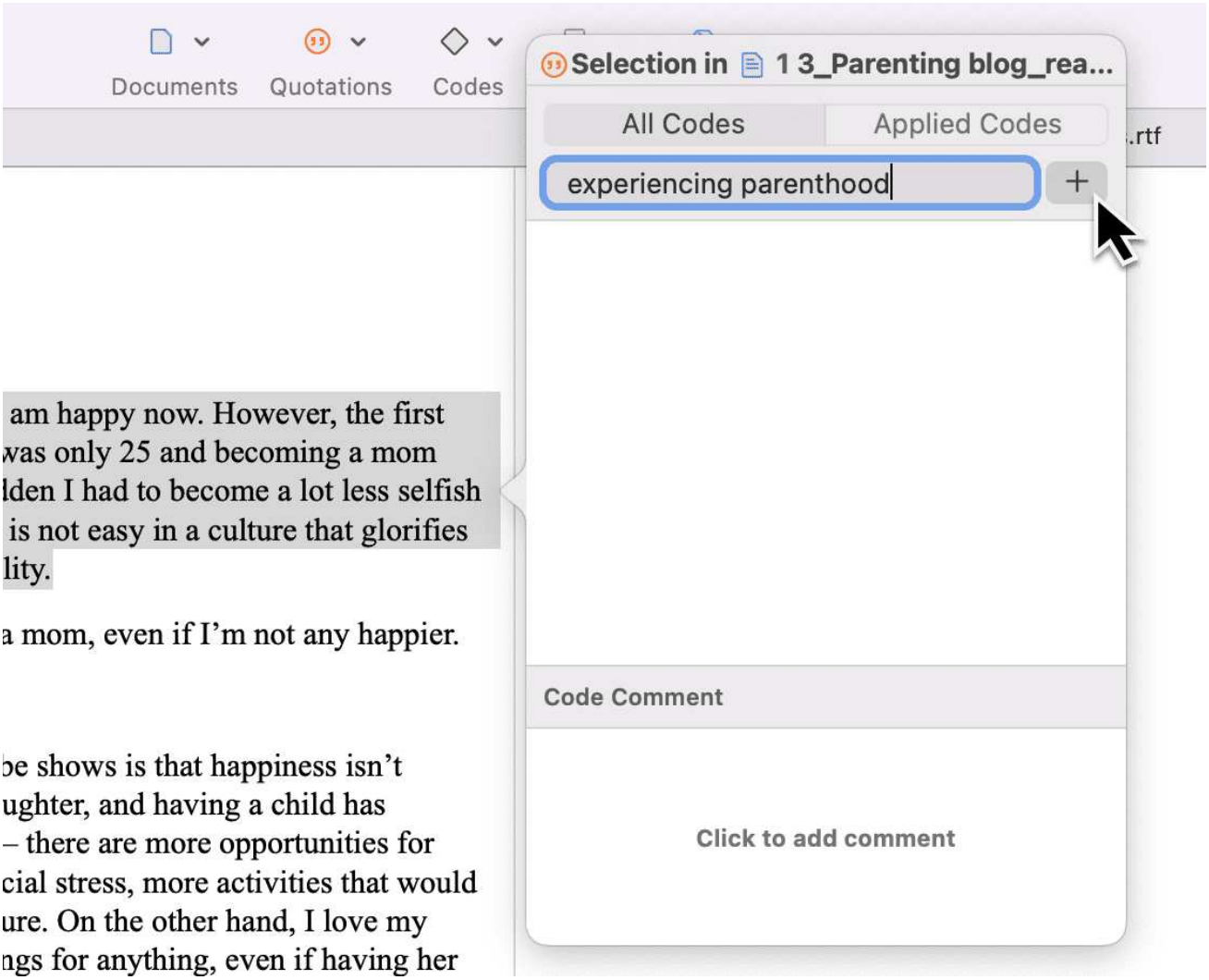
Coding with a New Code

> Open a document and highlight a data segment, i.e., a piece of text, audio or video data, an area in a graphic document, or a location in a geo document.

> Right-click and select **Apply Codes**, or use the short-cut **Cmd+J**, or click on the 'Apply Codes' button in the toolbar.



> Enter a name and click on the plus button or press enter. After the code is created, you can enter a definition in the comment field.



You can continue to add more codes, or simply continue to select another data segment. The dialogue closes automatically.

for more information on working with data other than text, see Working With Multimedia Data and Working With Geo Docs.

Code In-Vivo

Use in-vivo coding when the text itself contains a useful and meaningful name for a code.

In-Vivo coding can only be applied to textual primary documents.

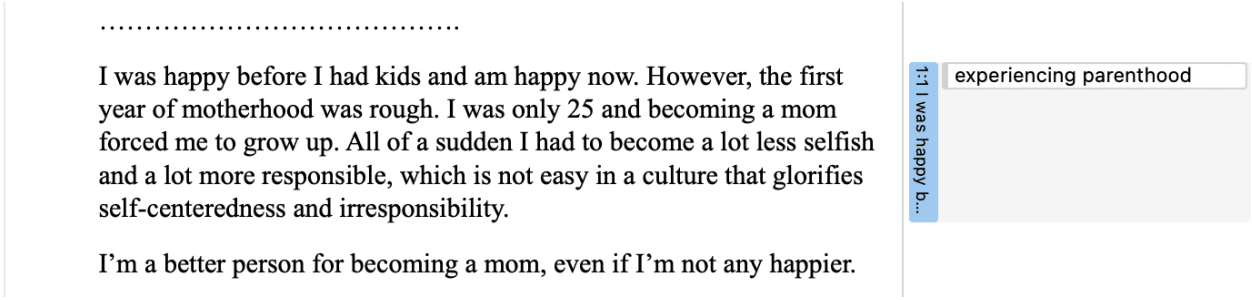
In-vivo coding creates a quotation from the selected text AND uses the selected text as the code name. If the selected text's boundaries are not exactly what you want for the quotation, modifying the quotation's "spread" is often the next step after creating the in-vivo code. See Working with Codes > Modifying the length of a coded segment.

> Select a segment in a text document, right-click and select **Code in Vivo**, or the corresponding button in the ribbon (Windows) / toolbar (Mac).

"Over-dependence on in-vivo codes ... 'can limit your ability to transcend to more conceptual and theoretical levels of analysis and insight' (Saldana, 2009:77). Where they are descriptive and unique to one person, the coder needs to move on from them quite quickly to generate a more analytical code." (Bazeley, 2013:166).

Display of Coded Data Segments in the Margin Area

The coded segment is displayed in the margin area. A blue bar marks the size of the coded segment (= quotation), and the code name appears next to it. When coding data in this way, a new quotation is created automatically, and the code is linked to this quotation.

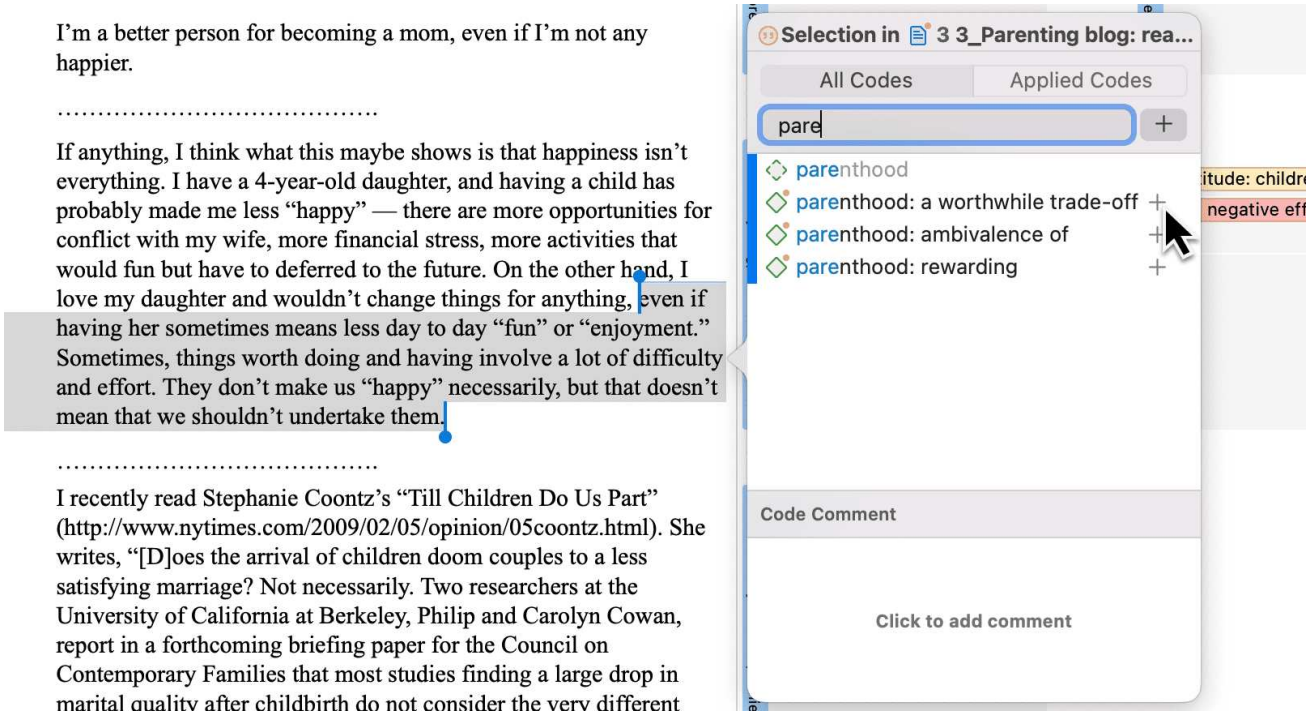


Applying Existing Codes

Existing codes can be applied using the **Coding Dialogue** or via **Drag & Drop**.

Using the Coding Dialogue

> Highlight a data segment, right-click and select **Apply Codes**, or simply double-click on the quotation.



It is easy to quickly jump to the code you are looking for by entering the first few letters of the code in the search field.

> Select one of the existing codes, click on the plus button or press Enter.

Drag-and-Drop Coding

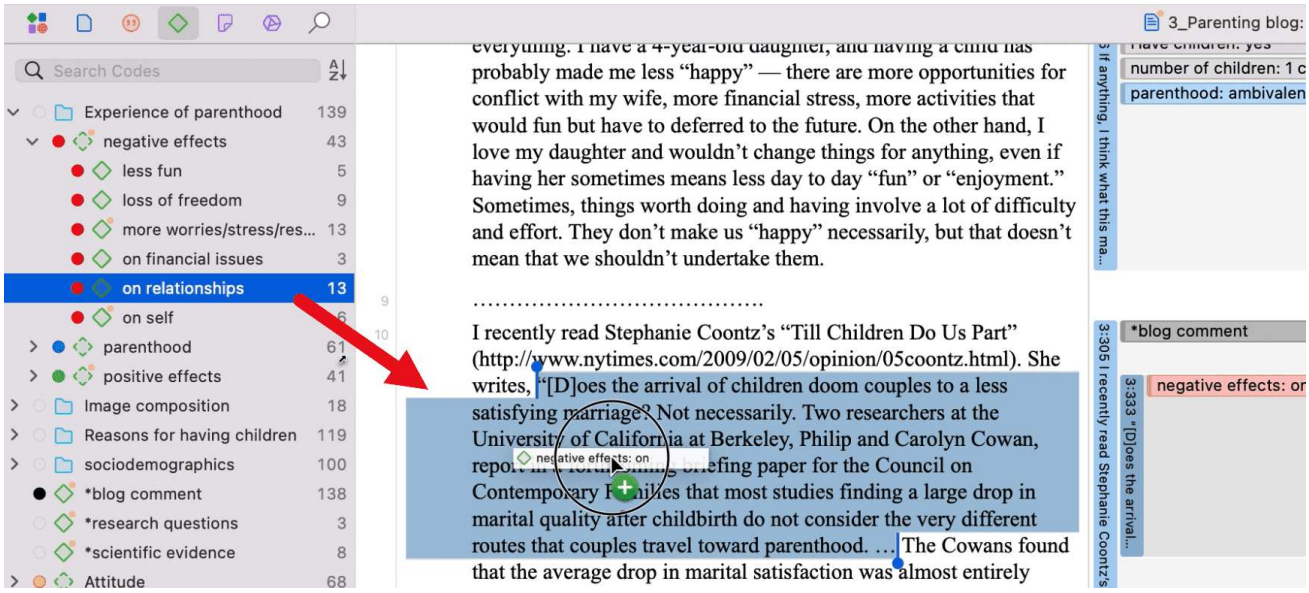
Drag-and-Drop Coding is possible from the following locations:

- the Codes branch from the **Project Explorer**
- the **Code Browser** in the navigation panel.
- the **Code Manager**

At the end of this chapter, you find other Drag-and-Drop options that are also available for your convenience.

Drag & Drop Coding from the Code Browser

> To open the Code Browser, click on the **Codes** icon. The search field in the Code Browser facilitates handling a longer code list. Rather than scrolling the list, you enter the first letters of a code.



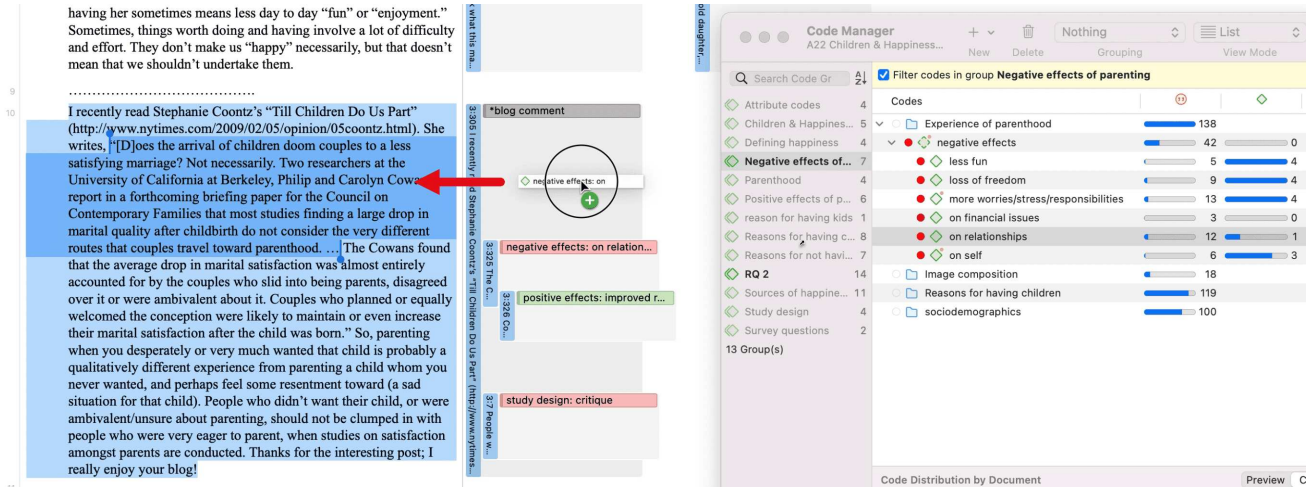
> Highlight a data segment, select one or more codes from the code list and drag the code onto the highlighted data segment.

By the way, in case you were wondering, code density is not a value that is calculated by the software. It goes up, when the researcher begins to link codes to each other. See Working With Networks.

Drag & Drop Coding from the Code Manager

When using the Code Manager for drag & drop coding, it is recommended to place it next to the data you are coding. If you click on the pin on the top right-hand side of the window, the Code Manager stays on top.

You can quickly access codes using code groups to filter the code list.



> Highlight a data segment, select one or more codes from the code list and drag the code onto the highlighted data segment.

Quick Coding

Quick Coding assigns the last used code to the current data segment. This is an efficient method for the consecutive coding of segments using the most recently used code.

> Highlight a data segment or click on an existing quotation.

> Right click and select **Quick Coding** from the context menu, or use the short-cut **cmd+L**. Another option is to select the Drop-down next to Apply Codes in the toolbar.

Keyboard Shortcuts For Coding

Coding	Short-Cut
Create Free Code	Cmd+K
Apply Codes	Cmd+J
Apply Last Used Codes	Cmd+L
Code In Vivo	Shift+Cmd+V

More Drag-And-Drop Options

- You can drag-and-drop quotations in the Quotation Manager to a code in the side-panel in the Quotation Manager.
- You can drag-and-drop quotations from the Quotation Manager to a code in Code Manager.

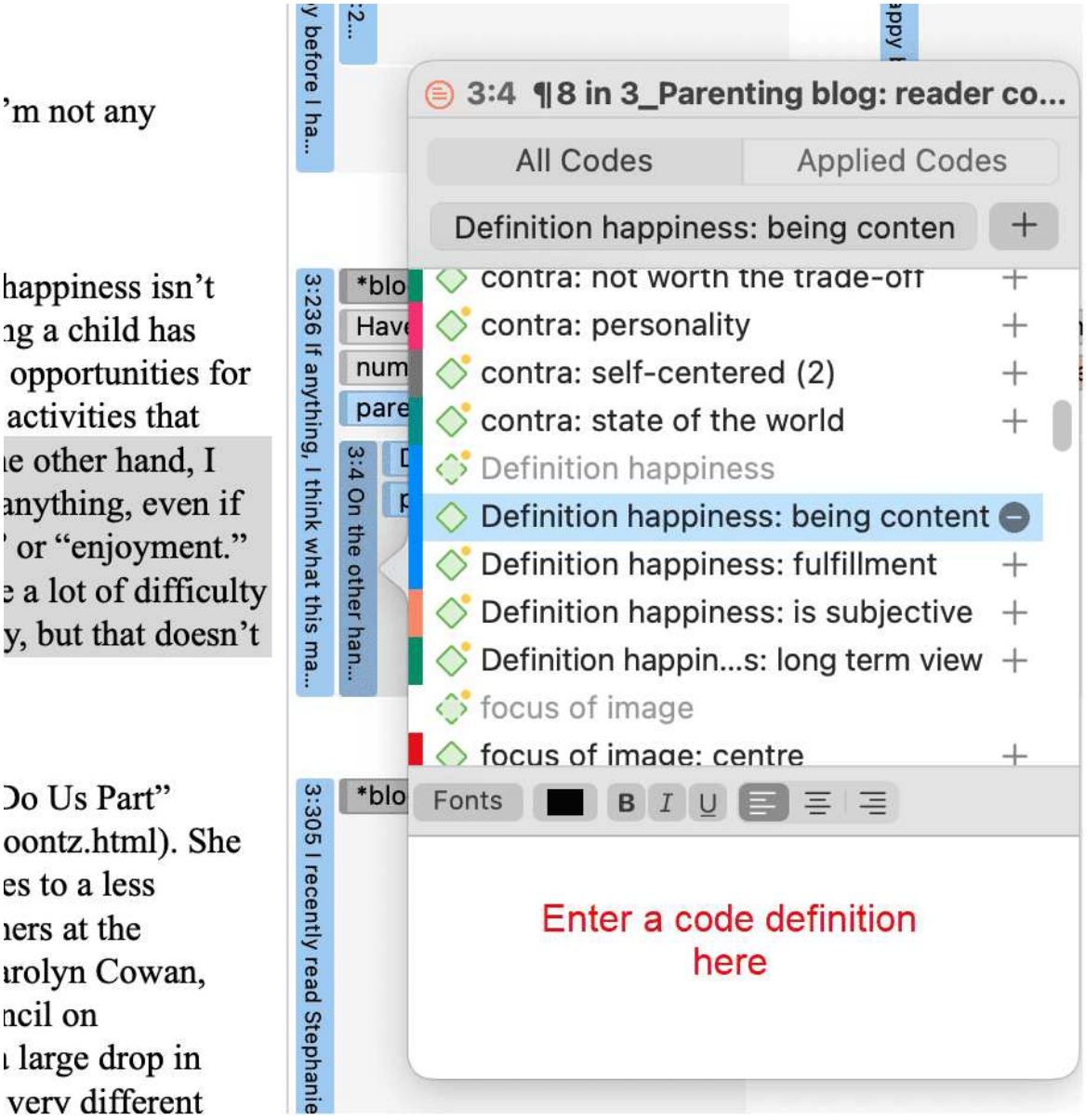
- You can drag-and-drop one or more codes to a quotation in the Quotation Manager.
- You can drag-and-drop one or more codes to a quotation in the Quotation Browser in the Navigation Panel.
- You can drag-and-drop quotations from the Quotation Browser to a code in Code Manager.
- You can drag-and-drop quotations from the Quotation Browser in the Navigation panel to a code in side panel of the Quotation Manager.

Writing Code Comments

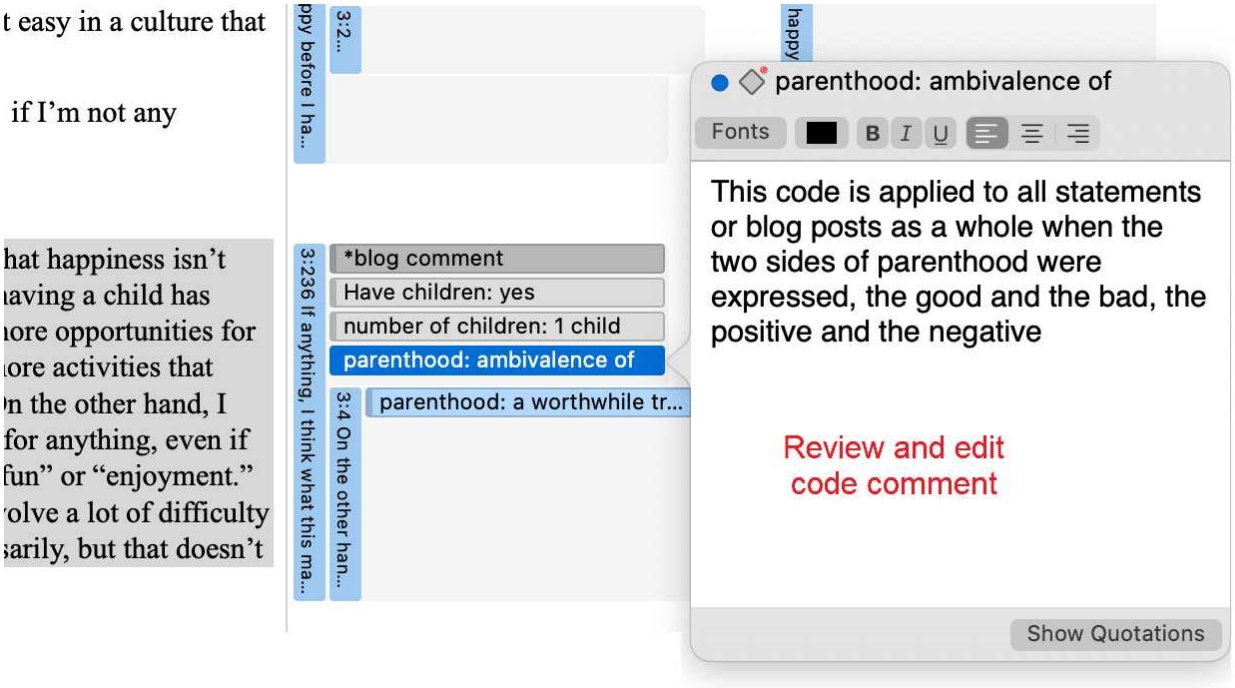
Code comments can be used for various types of purposes. The most common usage is to use them for a code definition. If you work in teams, you may also want to add a coding rule, or an example quote. If you work inductively, you can use code comments to write down first ideas of how you want to apply this code. You can also use it to write up summaries of all segments coded with this code and your interpretation about it. There are several ways to write a code comment.

- If you select a code anywhere, you can write a code comment in the inspector.
- Adding a code comment when creating a new code in the coding dialog:

> Enter a new code name and click on the + to create the code. Now you can enter a description or code definition in the comment field.



- In the margin area, you can double-click on a code to open the comment editor.



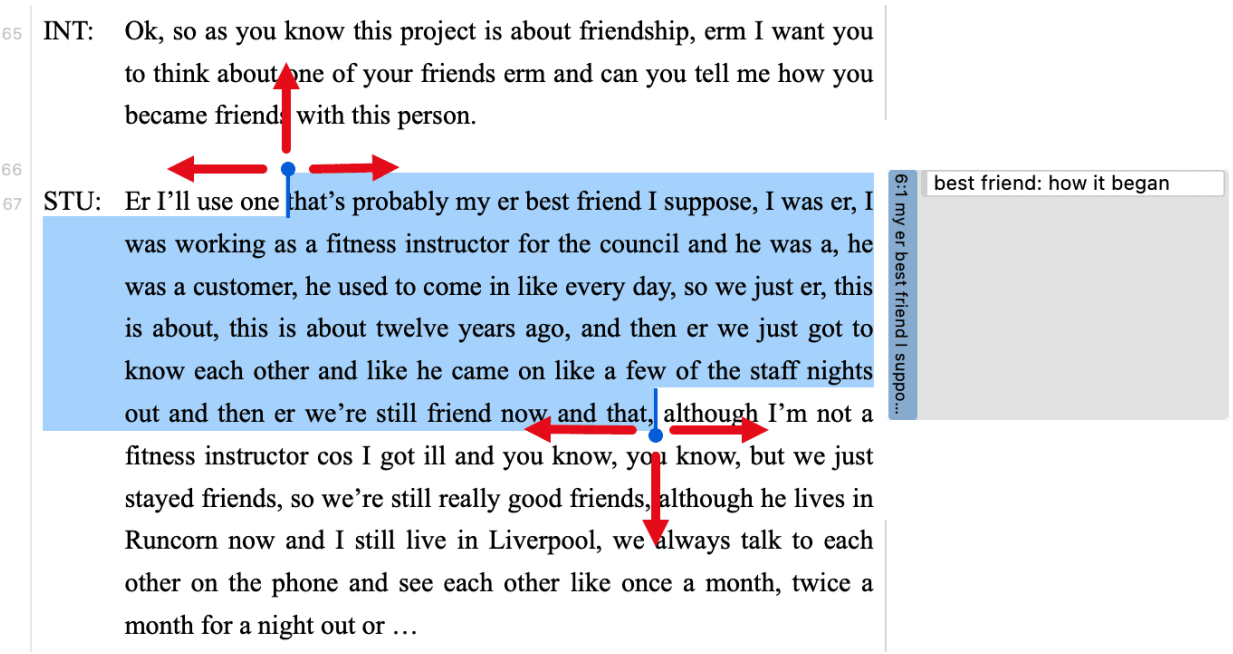
Another option is to right-click on a code anywhere and select the **Edit Comment** option from the context menu.

> All codes that have a comment shows a little yellow dot on top right-hand side of the code icon.

Working with Codes

Modifying the Length of a Coded Segment

> Select the quotation by clicking on the quotation bar or code in the margin area. Then move the handle in form of a blue line and dot to the right, to the left, or up or down, depending on whether you want to shorten or lengthen the quotation.



Removing a Coding

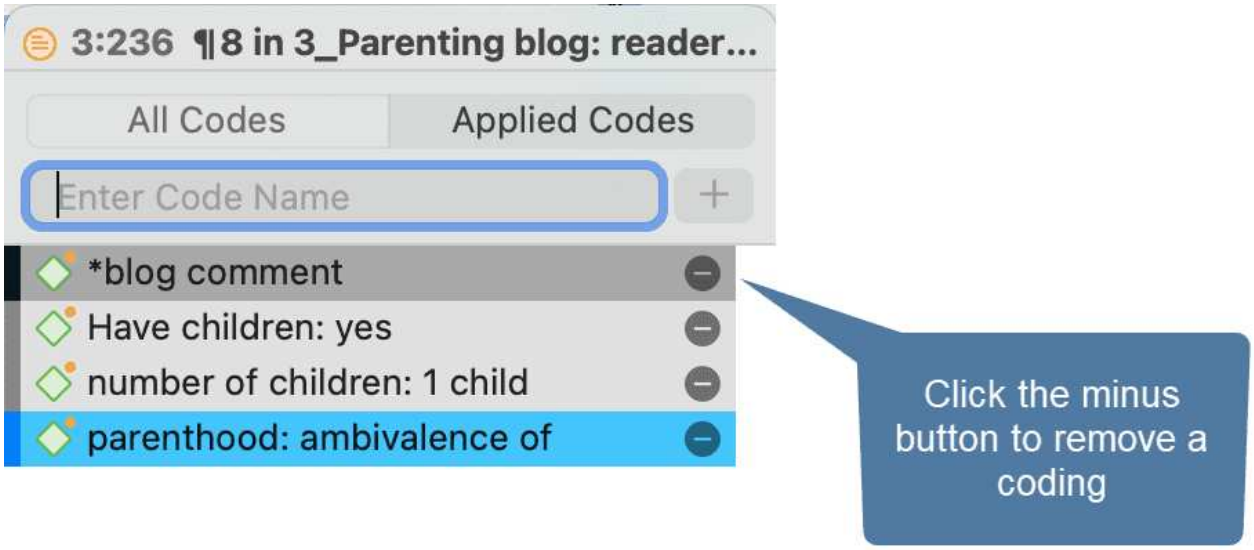
This option is the reverse function of coding. It removes the links between codes and quotations. Unlike the delete function, neither codes nor quotations are removed; only the association between the code, and the quotation is removed.

In the Margin Area

> Right-click on the code in the margin area and select the option **Unlink** from the context menu.

In the Coding Dialogue

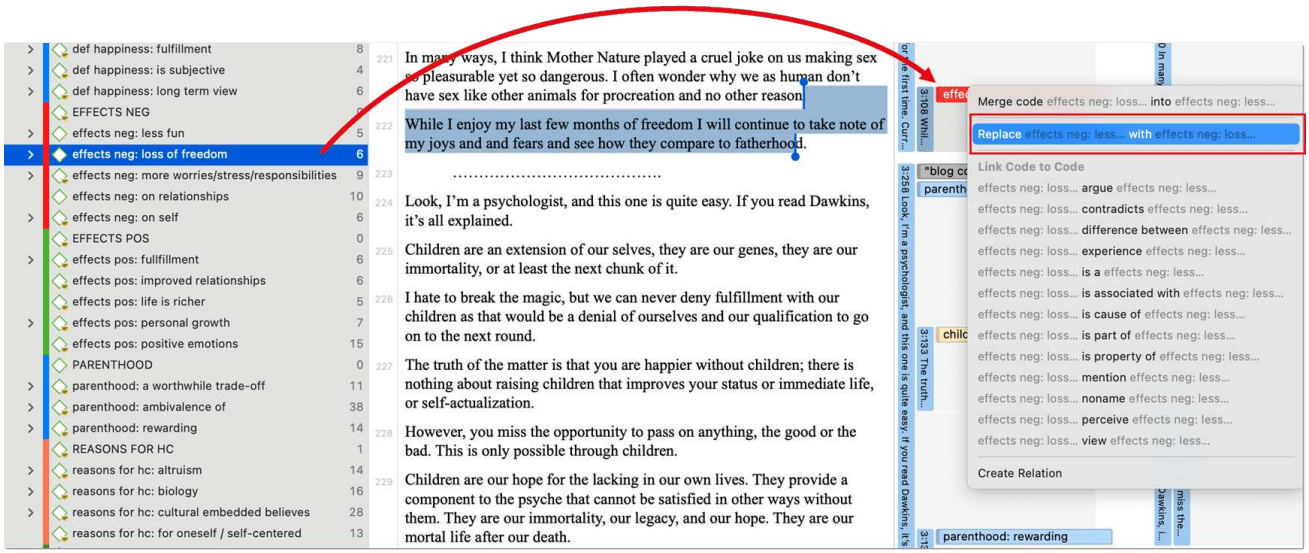
> Double-click on quotation in the margin area. This opens the Coding Dialogue. Click on **Applied Codes** to quickly see which codes have been applied to the quotation. Click on the button with the minus (-) to remove a code.



Replacing a Code via Drag & Drop

If you want to replace a code that is linked to a data segment:

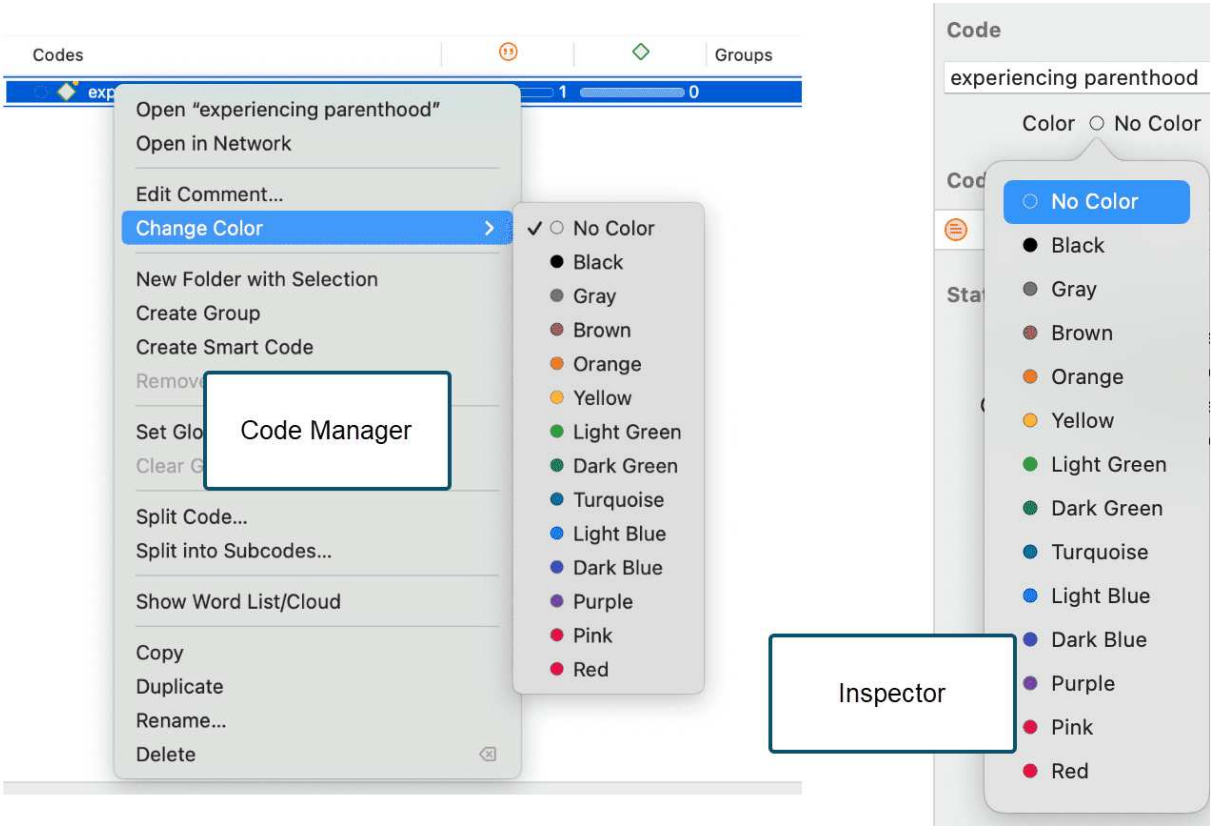
> You can drag and drop another code from either the Project Explorer, Code Browser, or the Code Manager on top of it.



Adding, Changing and Removing Code Color

> Select one or multiple codes in the Code Manager, the Project Explorer or Code Browser, right-click and select **Change Color** from the context menu. Select one of the offered colors.

You can also click on the color circle in the inspector. This also opens the list of code colors.

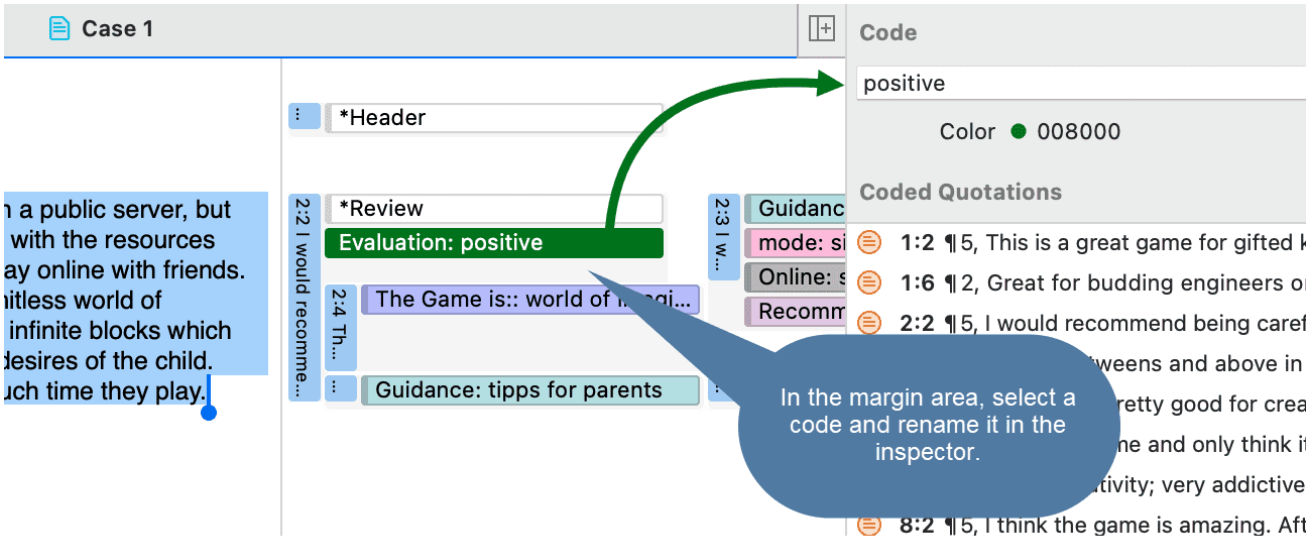


> The default color palette is suitable also for colorblind people. Additional colors can be added if you import a list of codes from Excel. See Importing code lists.

Renaming a Code

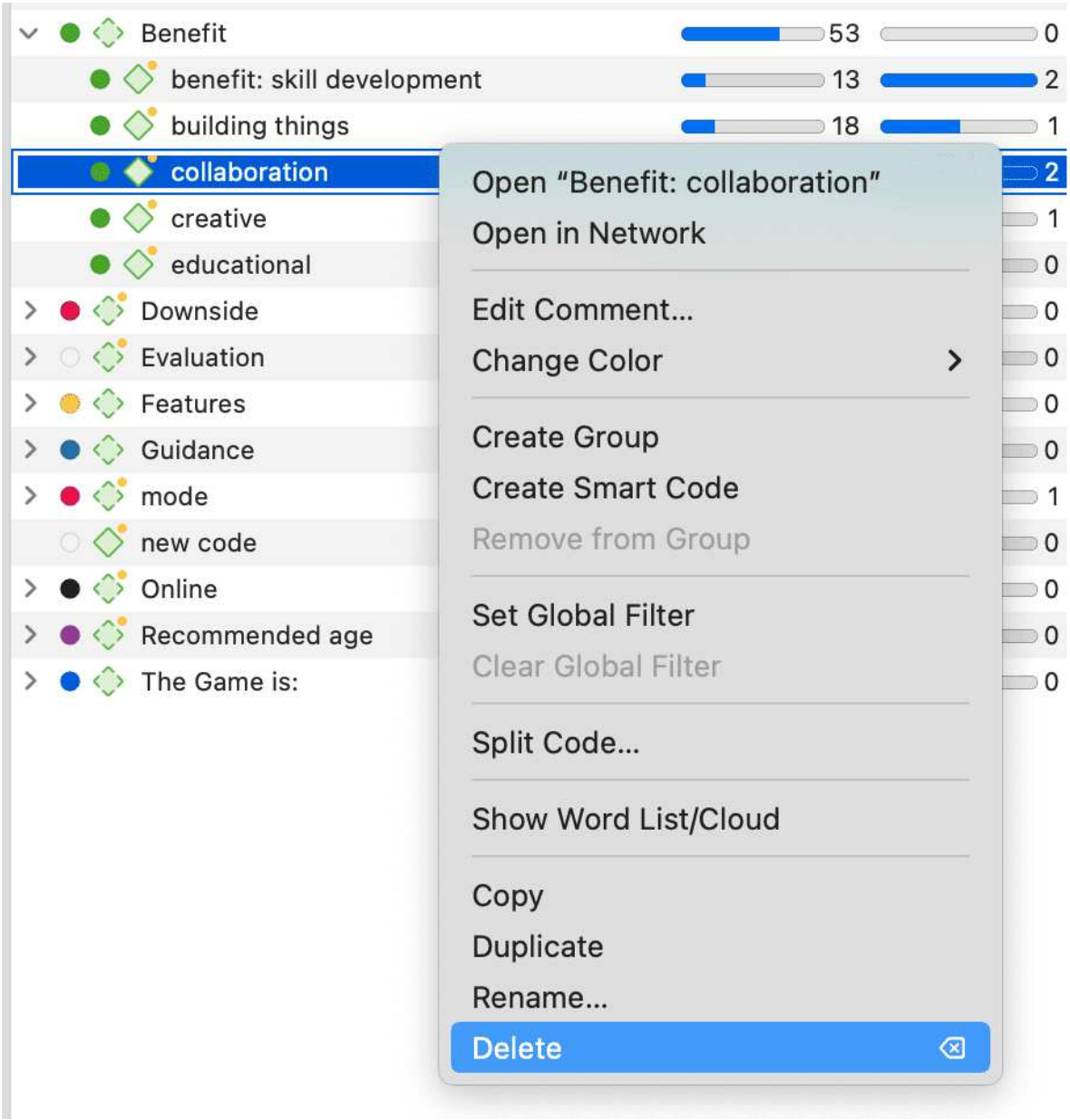
> You can left-click on a code anywhere to rename a code in in-place edit mode. Another option is to rename the code in the inspector.

To rename a code in the margin area, select a code and rename it in the inspector on the right-hand side.



Deleting One or Multiple Code(s)

> In the Project Explorer, the Code Browser, or Code Manager, right-click on a code and select **Delete**. To select multiple codes, hold down the command key.



About Renaming, Deleting and Unlinking Codes

Renaming and deleting codes are procedures that seem trivial, but understanding the scope of these operations can be a problem for new users. For both operations you must understand, that there is only ONE code, for example 'source of happiness: children' in a given project, even if you *applied* this code many times.

In the margin are, you may see the code appear many times while scrolling through your document. In fact, you are seeing the *codings* for this code. Technically speaking, these are links between a quotation represented by a blue bar and the code, represented by its name and icon.

Removing a coding in the margin area (i.e., unlinking the code) is like erasing a word in the margin of a paper document with an eraser. It only affects one coding, i.e., one specific occurrence of the code. All other occurrences of the same code are untouched. The effect of the operation is local.

By renaming or removing a code from a project, you are affecting every occurrence of the code throughout the entire project. The effect is *global*. Renaming the code will instantly change all the

code links in the margin to reflect the new name. Deleting it will remove all occurrences in the margin (and from all other contexts in which it was engaged, like networks, groups, etc.).

Duplicating a Code

It is also possible to duplicate codes with all its linkages. The duplicated code is a perfect clone of the original code including color, comment, code-quotation links, code memo links and code-code links. Duplicating a code can be a useful option to clean up or modify a code system.

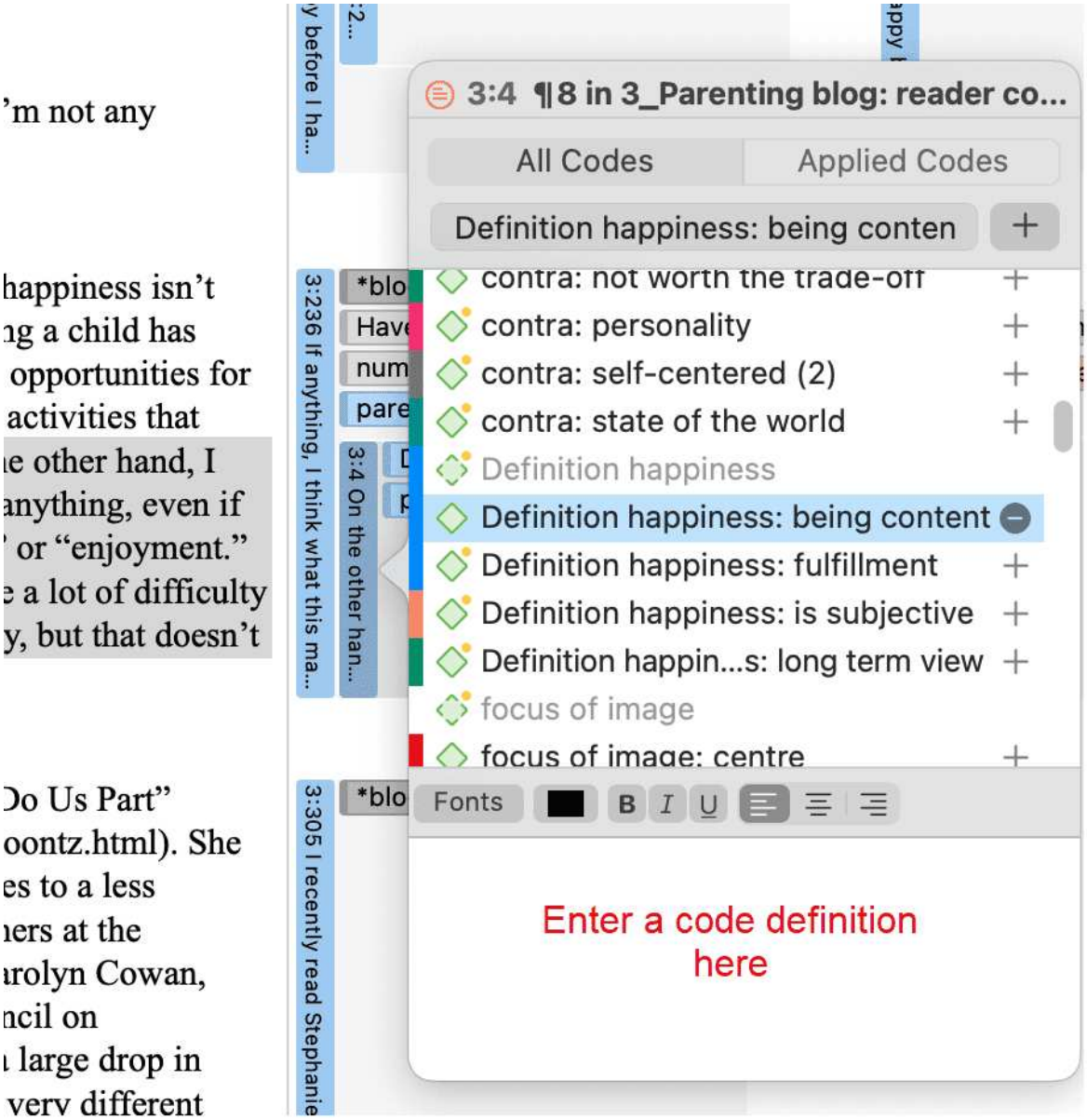
> To duplicate a code, right-click on a code in the Project Explorer, Code Browser or Code Manager and select **Duplicate**.

Writing Code Comments

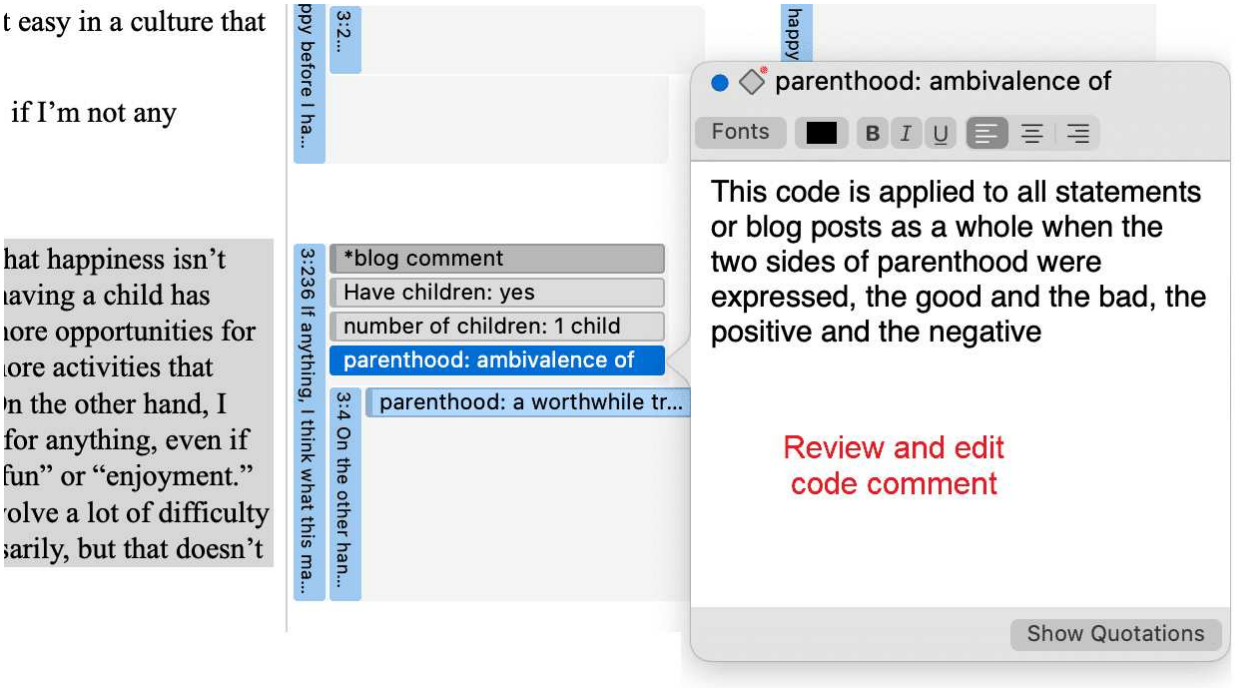
Code comments can be used for various types of purposes. The most common usage is to use them for a code definition. If you work in teams, you may also want to add a coding rule, or an example quote. If you work inductively, you can use code comments to write down first ideas of how you want to apply this code. You can also use it to write up summaries of all segments coded with this code and your interpretation about it. There are several ways to write a code comment.

- If you select a code anywhere, you can write a code comment in the inspector.
- Adding a code comment when creating a new code in the coding dialog:

> Enter a new code name and click on the + to create the code. Now you can enter a description or code definition in the comment field.



- In the margin area, you can double-click on a code to open the comment editor.



Another option is to right-click on a code anywhere and select the **Edit Comment** option from the context menu.

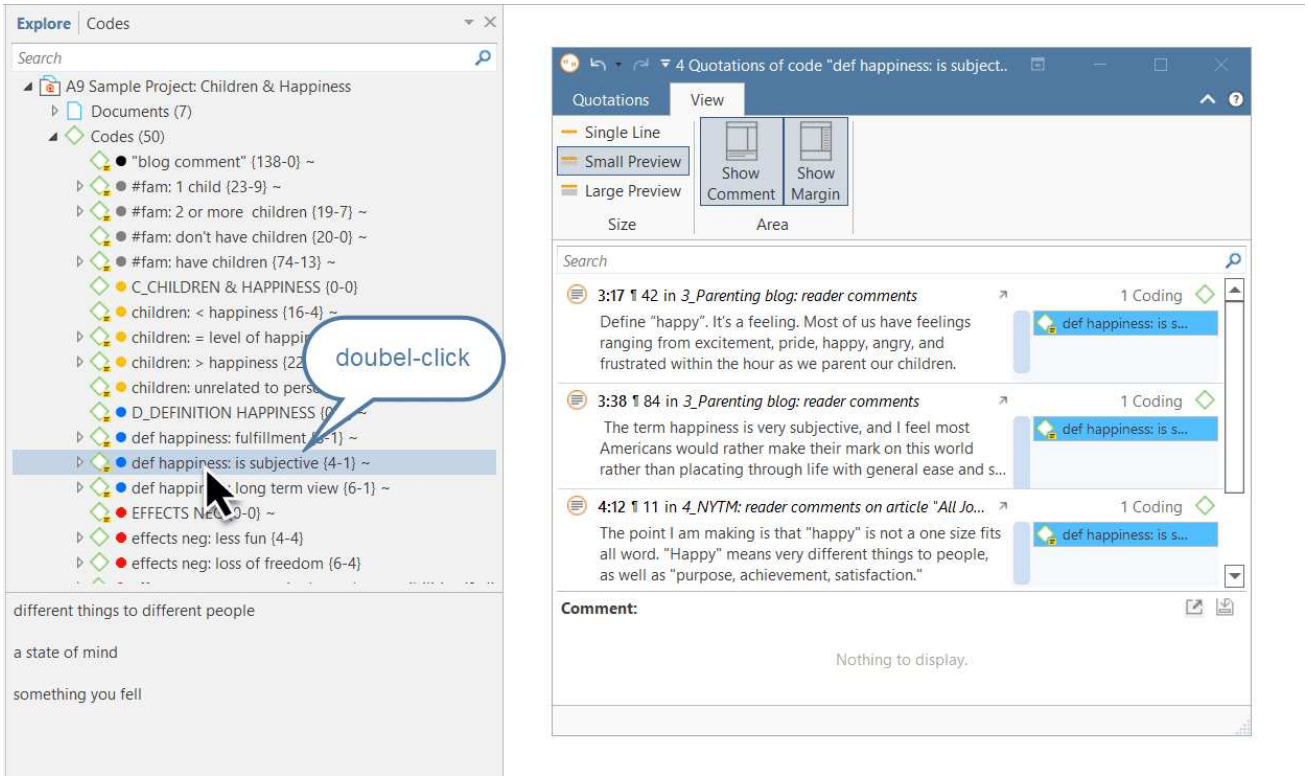
> All codes that have a comment shows a little yellow dot on top right-hand side of the code icon.

Retrieving Coded Data

Video Tutorial: Retrieving coded data.

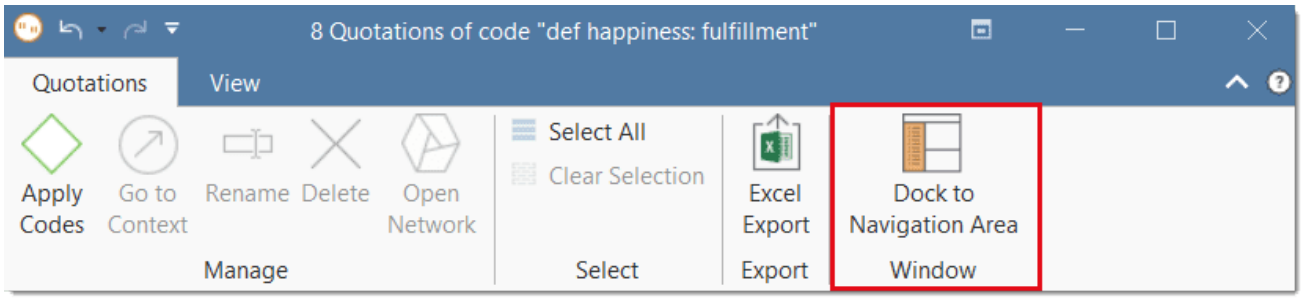
From the Project Explorer, Code Manager or Code Browser

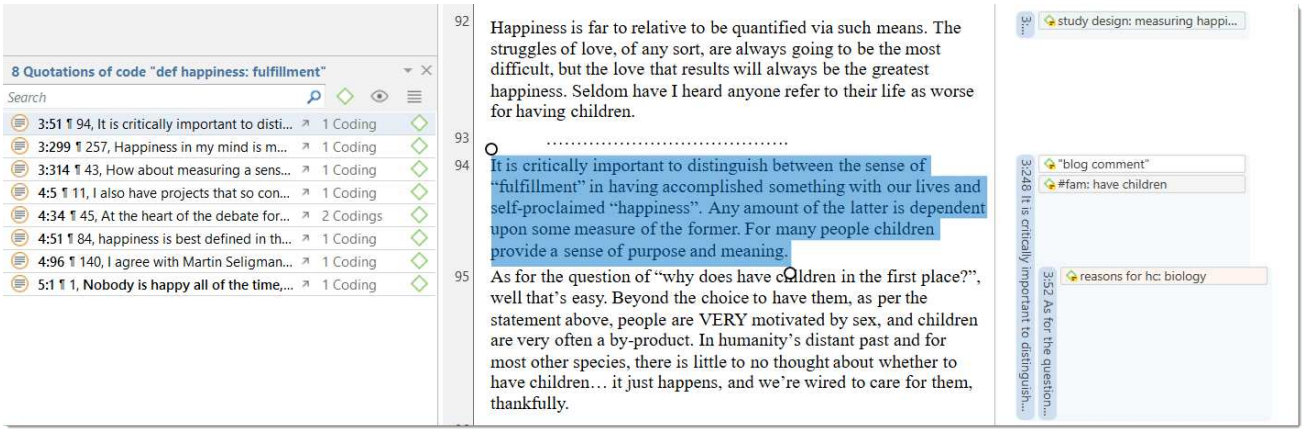
> Double-click a code. This open the Quotation Reader and you can review all codings.



If you prefer to read the data in context, you can dock the Quotation Reader to the right or left-hand side of your screen in single line format. To do so:

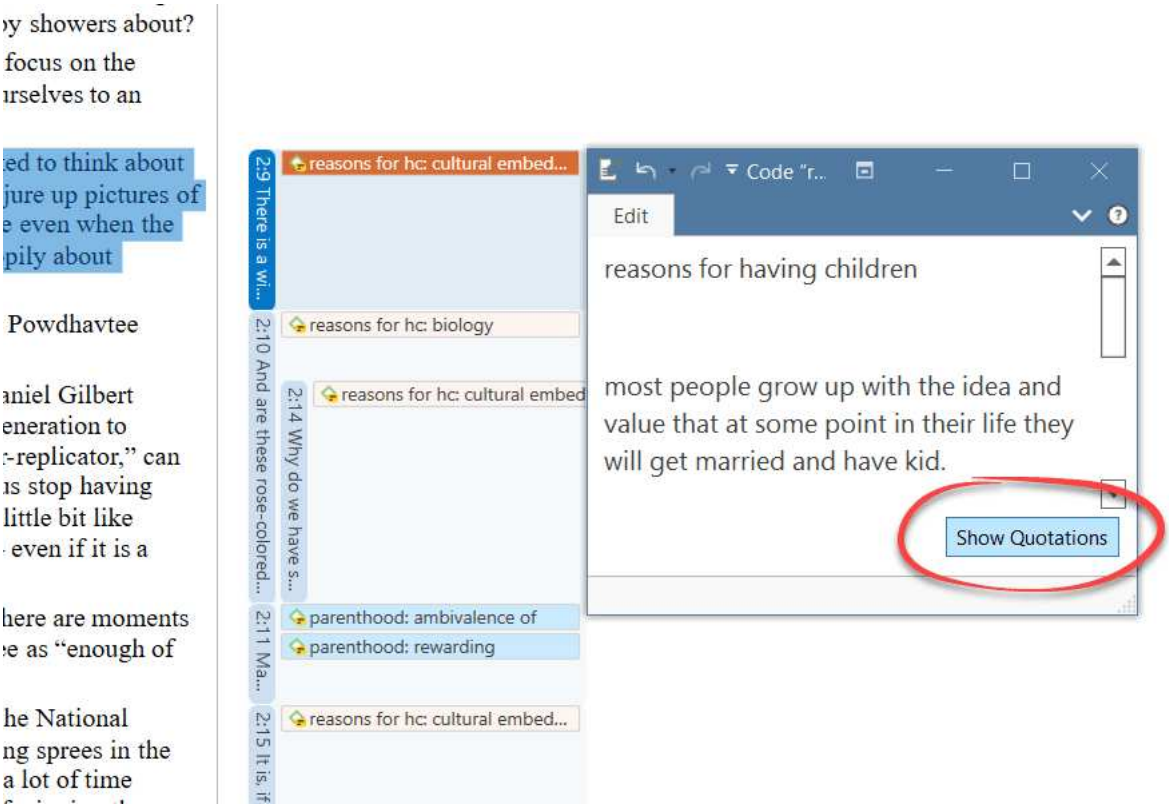
> Select the option **Dock to Navigation Area** in the ribbon:





Simple Retrieval in the Margin Area

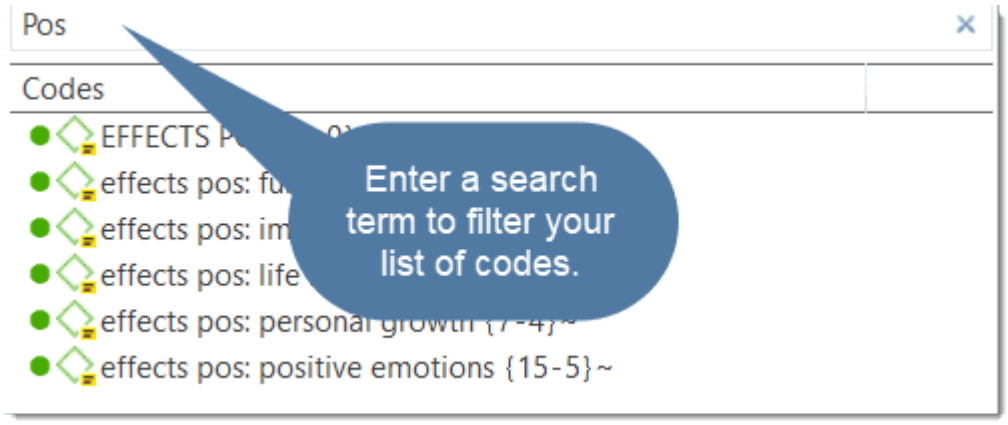
> If you double-click on a code in the margin area, the comment field opens. From there you can access the quotations coded with the code.



Simple Boolean Queries in The Quotation Manager

> Open the Quotation Manager.

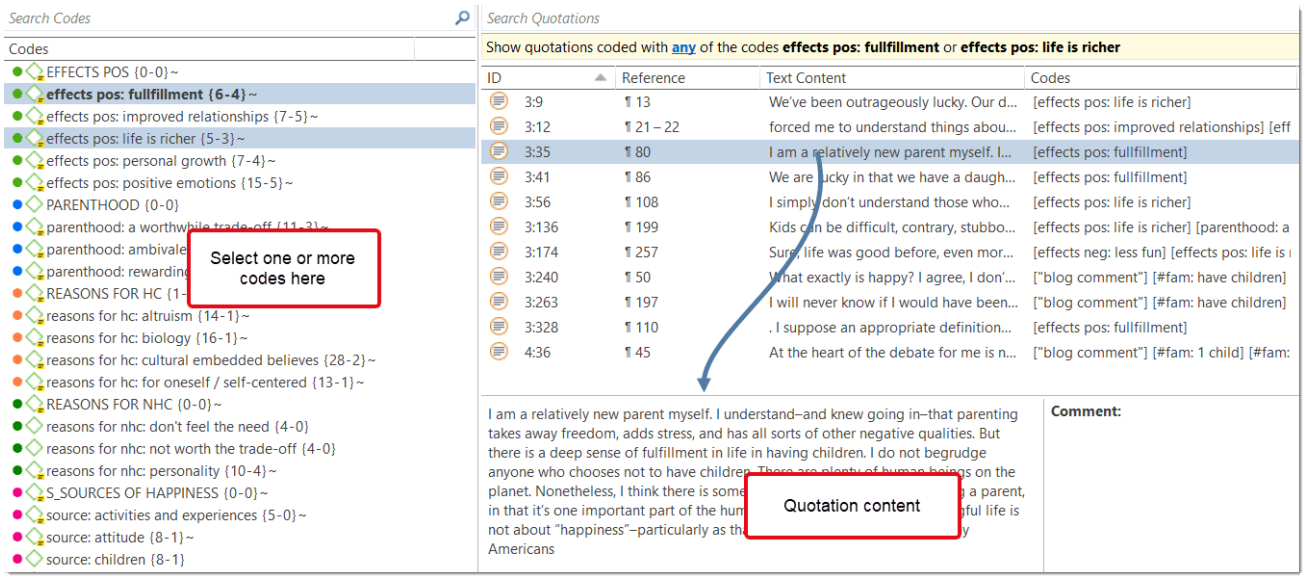
> Select a code in the filter area. If you have a long list of codes, you can enter a few letters into the *Search Code* field to reduce the list to only the codes you are looking for:



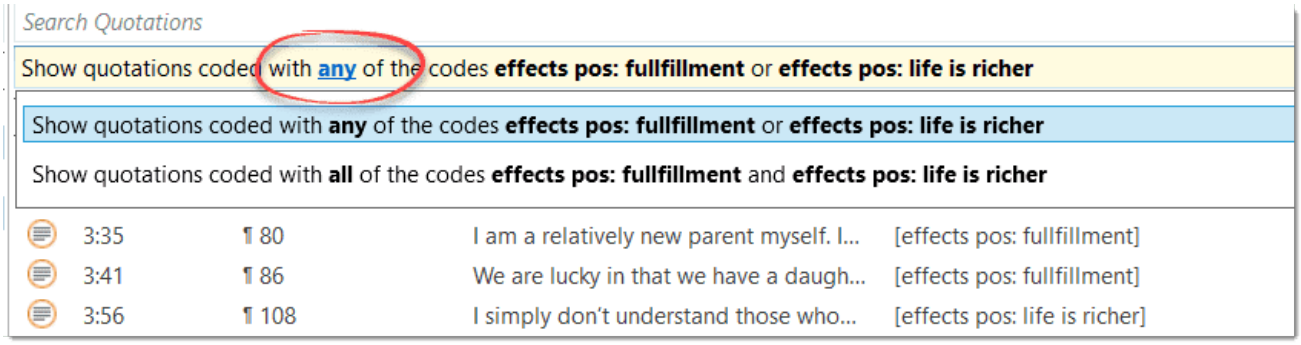
The list of quotations only shows the quotations of the selected code. If you click on a quotation, it will be shown in the preview area. If you double-click, the quotation will be shown in the context of the document.

The yellow bar on top shows the code(s) you are using as filter.

When selecting two or more codes in the side panel, the filter is extended to an OR query: *Show quotations coded with of **ANY** of the codes*.....



> Click on the blue underlined **any** operator. This opens a drop-down, and you can change between *ANY* and *ALL*.

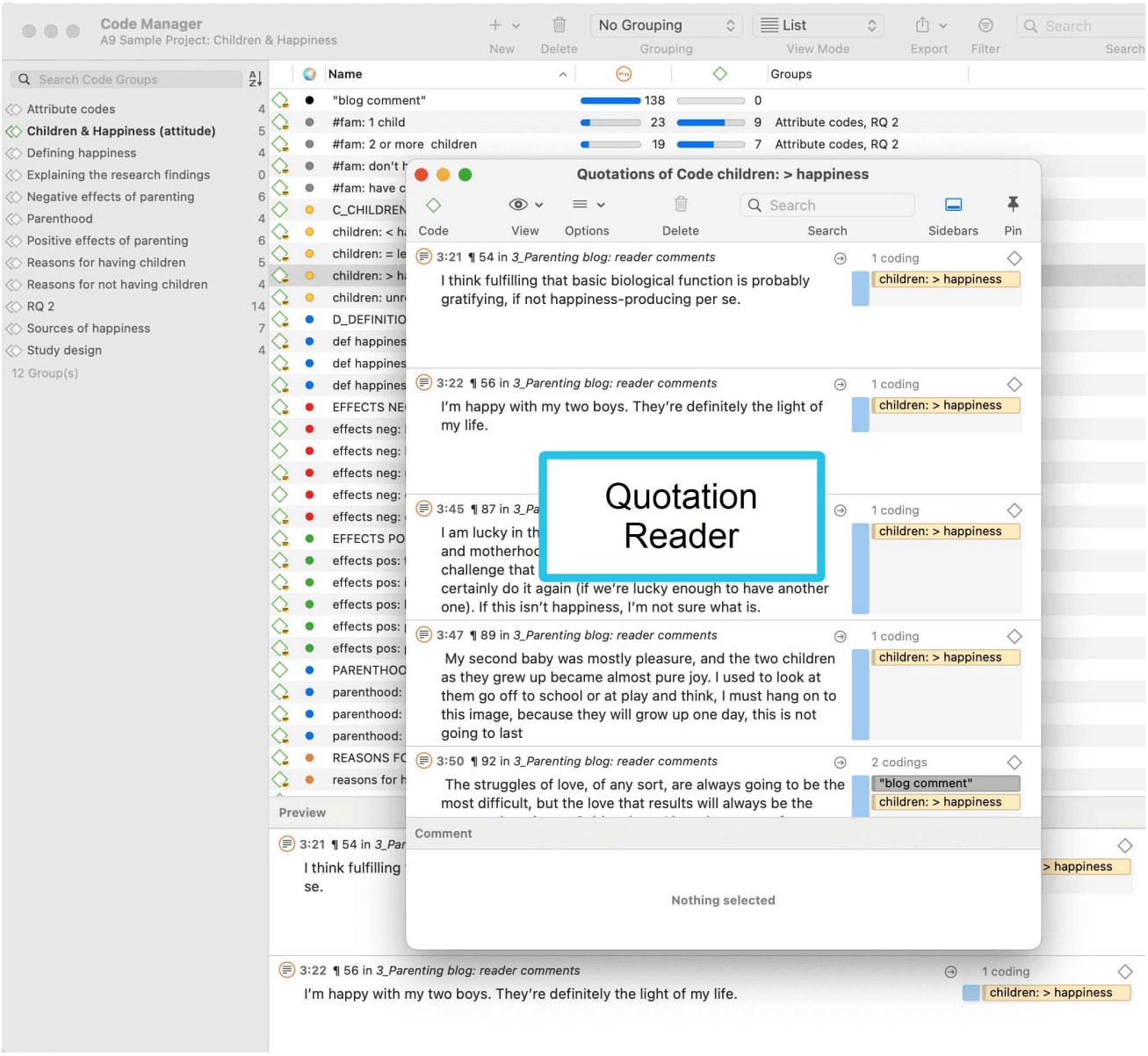


- ANY: Show all quotations linked to **any** of the selected codes.
- ALL Show quotations where **all** the selected codes apply. This means that two or more codes have been applied to the exact same quotation.

Video Tutorial: Retrieving data - Quotation Reader

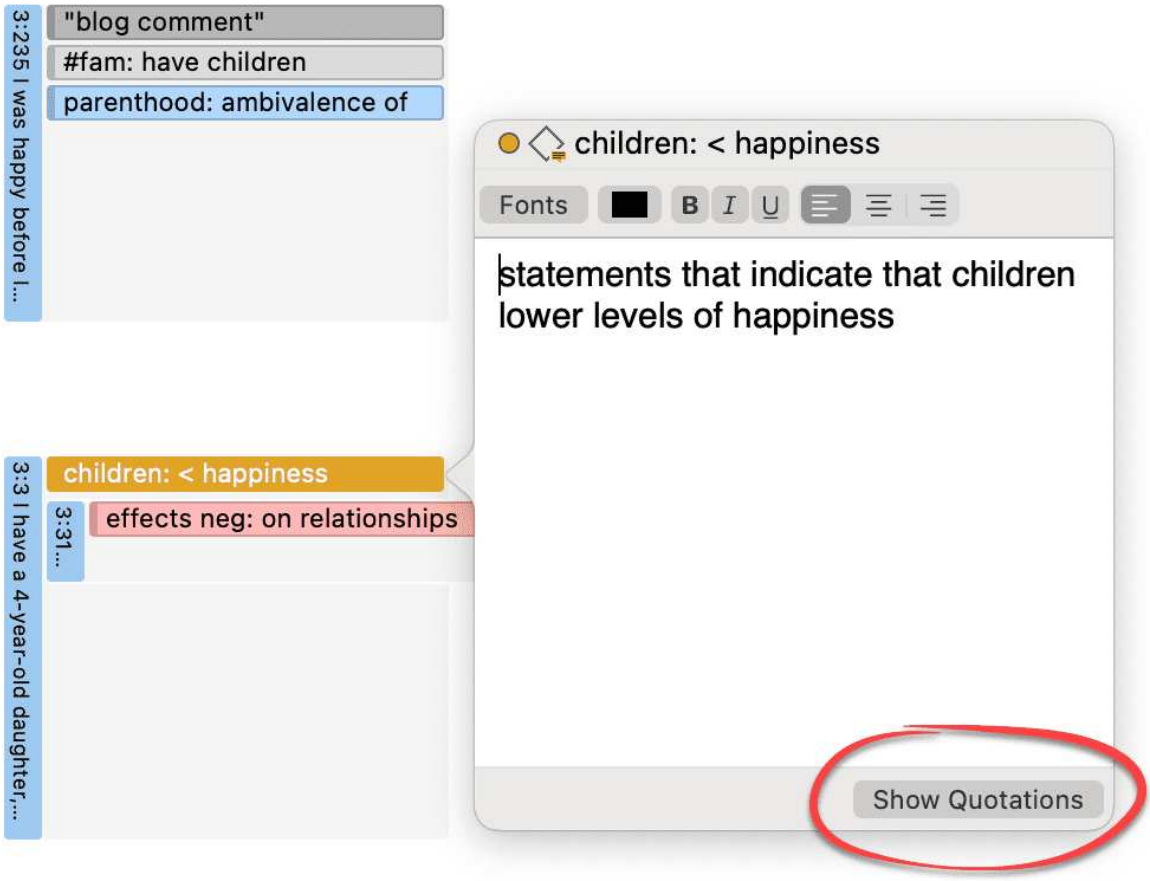
In the Code Manager

> Open the Code Manager and double-click a code. This open the Quotation Reader. In the Quotation Reader you can review, edit and also delete codings.



Simple Retrieval in the Margin Area

> If you double-click on a code in the margin area, the comment field opens. From there you can access the quotations coded with the code.



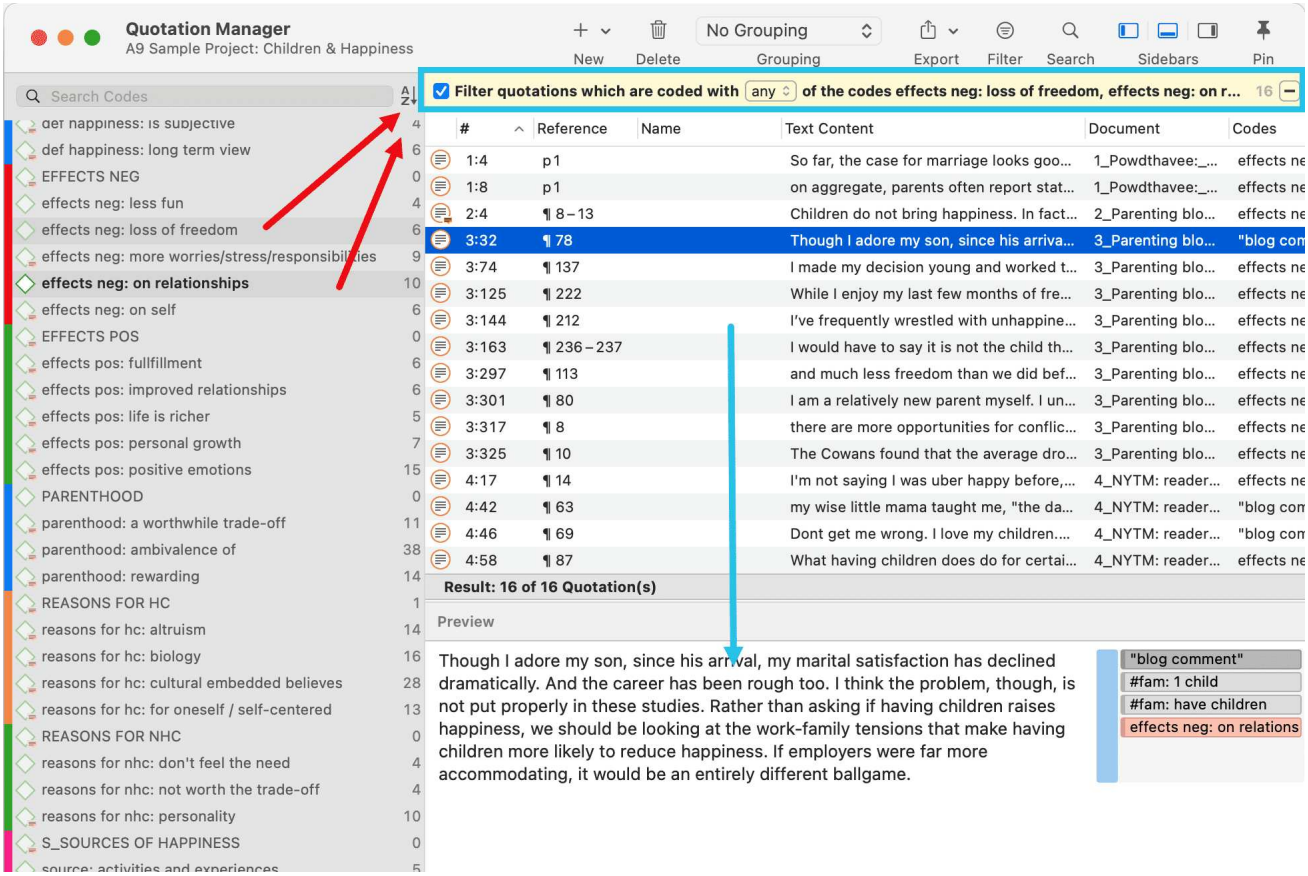
Simple Boolean Queries in The Quotation Manager

> Open the Quotation Manager.

> Select a code in the filter area. The list of quotations only shows the quotations of the selected code. If you click on a quotation, it will be shown in the preview area. If you double-click, the quotation will be shown in the context of the document.

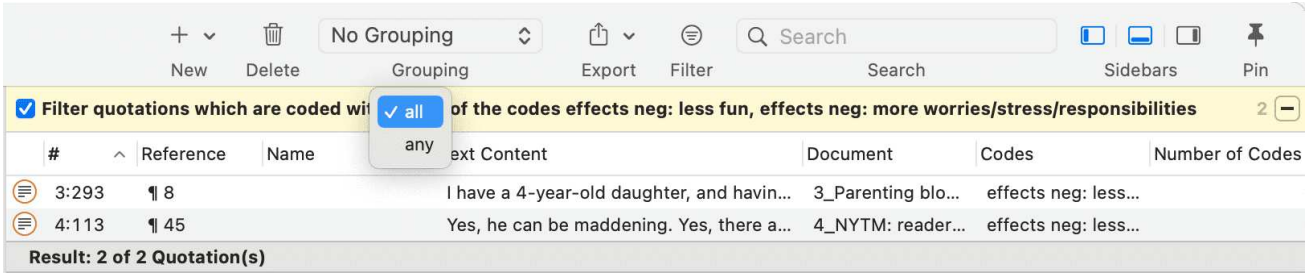
The yellow bar on top shows the code(s) you are using as filter.

When selecting two or more codes in the side panel, the filter is extended to an OR query - Filter quotations, which are coded with **any** of the codes.....



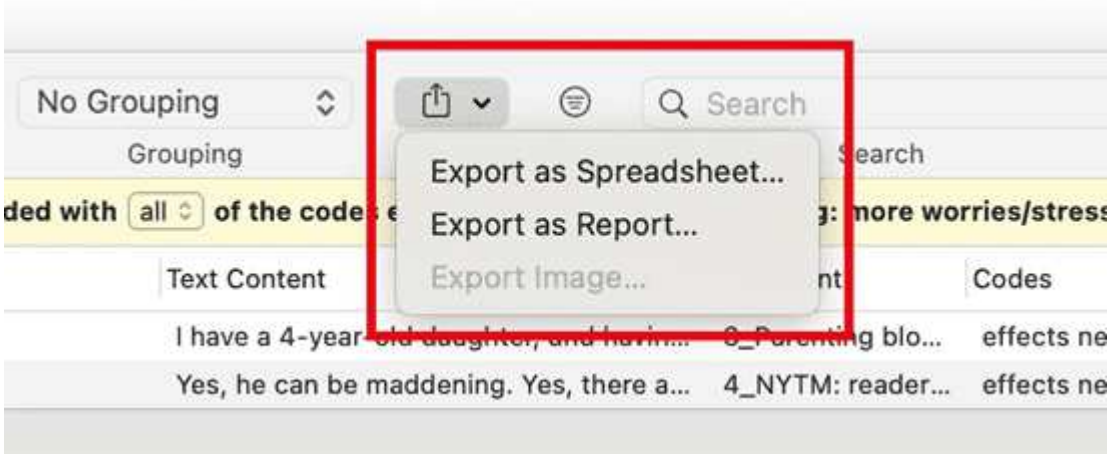
> Click on the box with the **any** operator. This opens a drop-down, and you can change between *ANY* and *ALL*.

- **ANY:** Show all quotations linked to **any** of the selected codes.
- **ALL** Show quotations where **all** the selected codes apply. This means that two or more codes have been applied to the exact same quotation.



Exporting Results

If you want to export the results, click on **Export** button and select an option from the drop-down menu. For further information on available reports and report options, see Creating Reports.


No Grouping
Grouping
Search
Search
Export as Spreadsheet...
Export as Report...
Export Image...
ded with all of the code
more worries/stress
Text Content
Codes
I have a 4-year
g blo...
effects ne
Yes, he can be maddening. Yes, there a...
4_NYTM: reader...
effects ne

Creating Categories and Subcodes

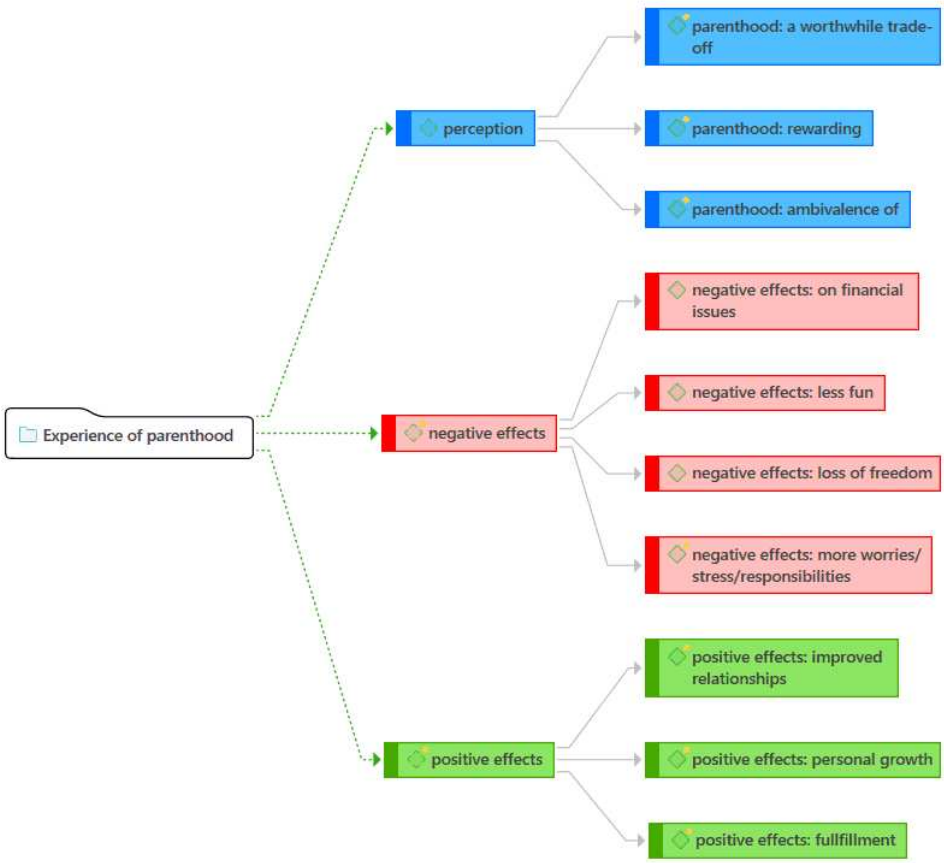
Video Tutorial: Building a code hierarchy. If you want to sort your codes into higher and lower order codes, you can make use of **categories and subcodes**. An additional way to organize your codes are folders. Folders can contain other folders. This gives you multiple levels of organizing your codes. Only independent codes and subcodes can contain coded data. The reason for this is methodical rather than technical. If you use a deeper hierarchy, you will likely start duplicating and even multiplying codes at the lower levels. Not only does this make your code system long and difficult to maintain, it also prevents you from performing effective comparative analysis. Below we quote just one of the many authors who offer this advice:

> *"If you have a typical project of moderate complexity, it should require no more than 10 top-level [parent] categories" to cover the topic [...]. Furthermore, most code systems do not go more than two or three levels deep. If they do, it is likely that the categories being used are no longer true subcategories of the higher-order categories they are under; and, on a practical level, it becomes inconvenient for the coder to remember, locate, and effectively use them"* (Bazeley, 2013. p. 183).

See also: How to build a code system.

An additional way to organize your codes are **folders**. You can add independent codes and categories with their subcodes to folders. Folders can also contain other folders. This allows you to group codes under themes or topics that are too abstract anyway to be used for coding.

Below is an example showing a 3 level hierarchy, illustrated using the ATLAS.ti network function:



Creating Categories with Subcodes

There are two ways to create a category: by moving codes via drag & drop under a *free* code, or by splitting a code that already has codings.

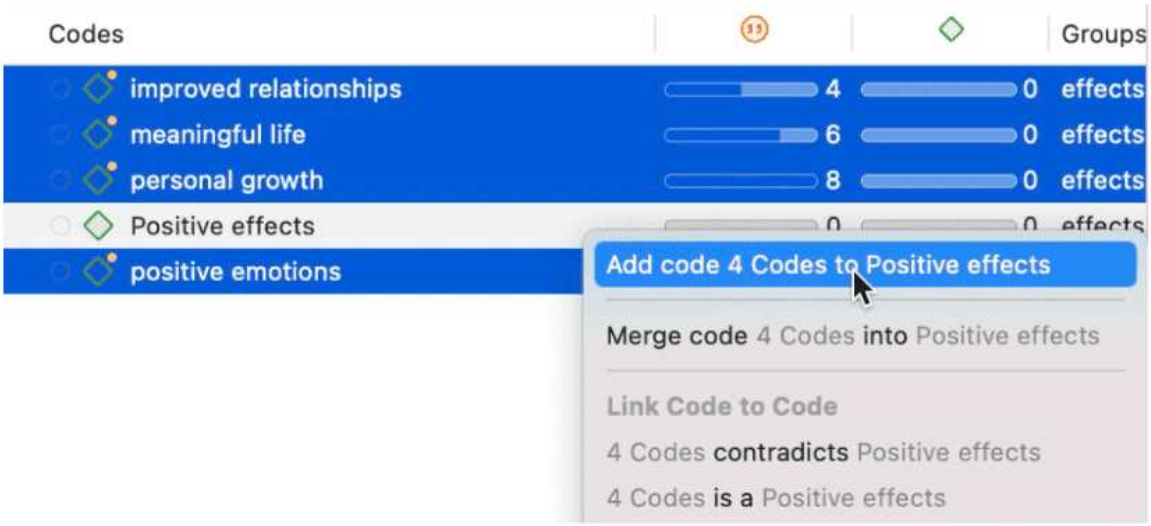
Moving Codes under a Free Code

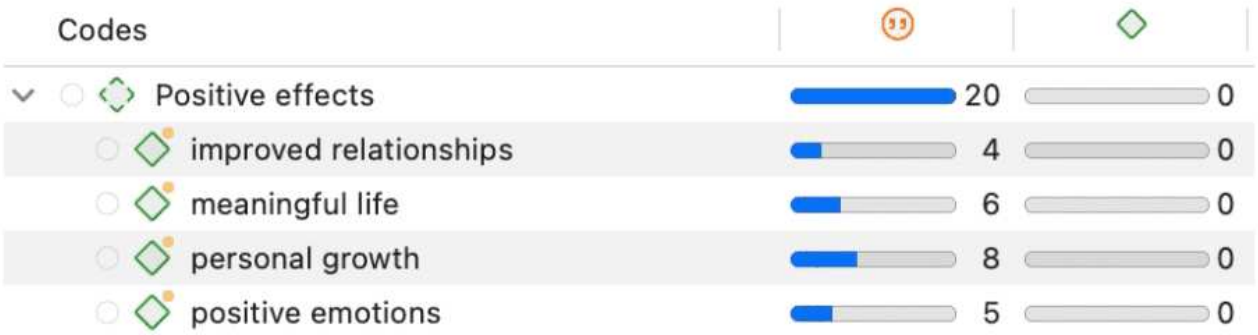
> Create a new code.

> Select one or more codes in the code list using the common selection techniques for multi selections.

> Drag the codes to the newly created code. A context menu opens. Select the first option: **Add 'x number codes' into...**:

Once you have added subcodes to an independent code, it becomes a category. The code icon changes. See image below.





Creating a Category via Splitting

Select a code that you want to split into subcodes.

Right-click and select the option **Split into Subcodes**. The Split Code tool opens.

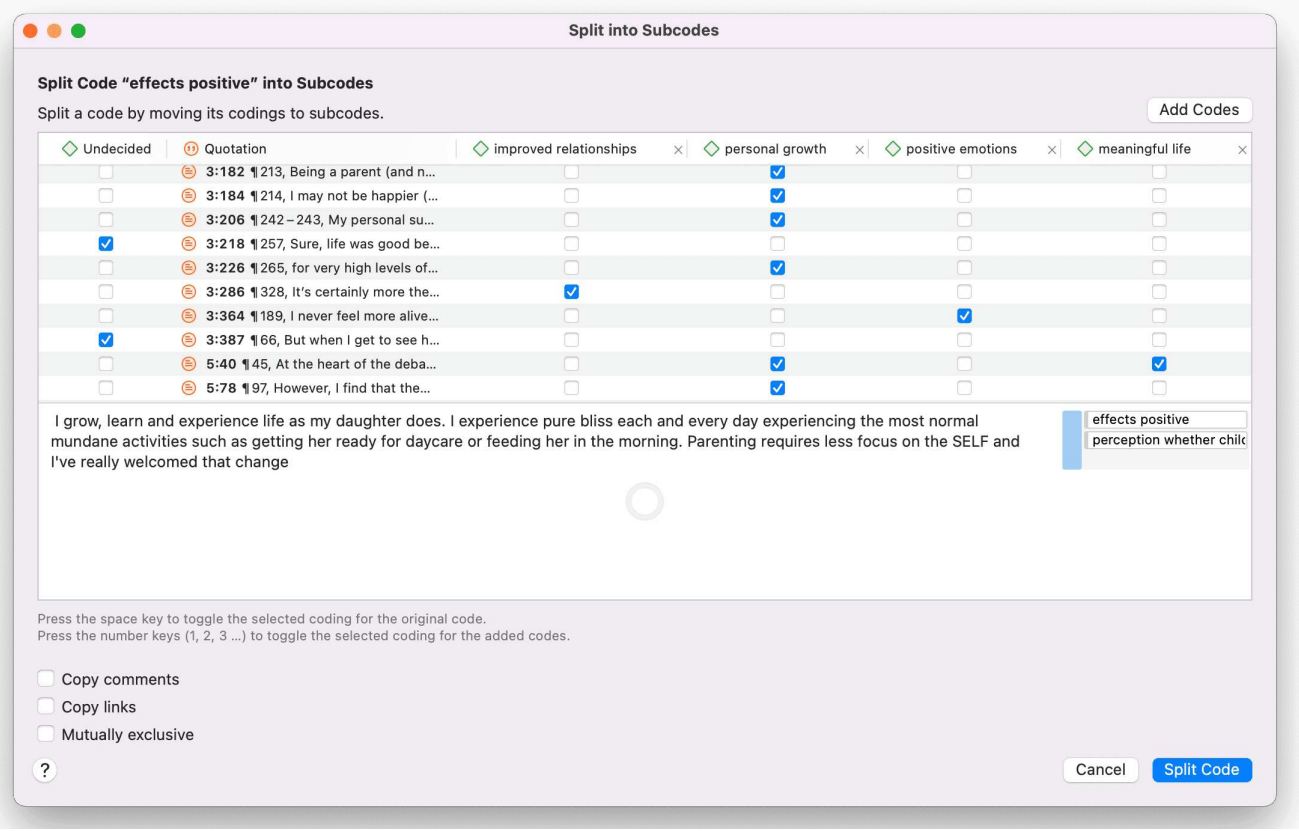
> Click on **Add Codes** to enter the labels for the subcodes. After entering the first code, press the right arrow (→|) to move to the next entry field to enter the second label, and so on. Once you are done, click on **Add**.

By default, a subcode with the name **Undecided** is added to the first column of the table. All quotations are added to this subcode. The next step is to assign the quotations to the new subcodes you have created. If a quotation does not fit into any of these subcodes, you can just leave it in the subcode 'Undecided'.

This is how you assign the quotations to one or more subcodes:

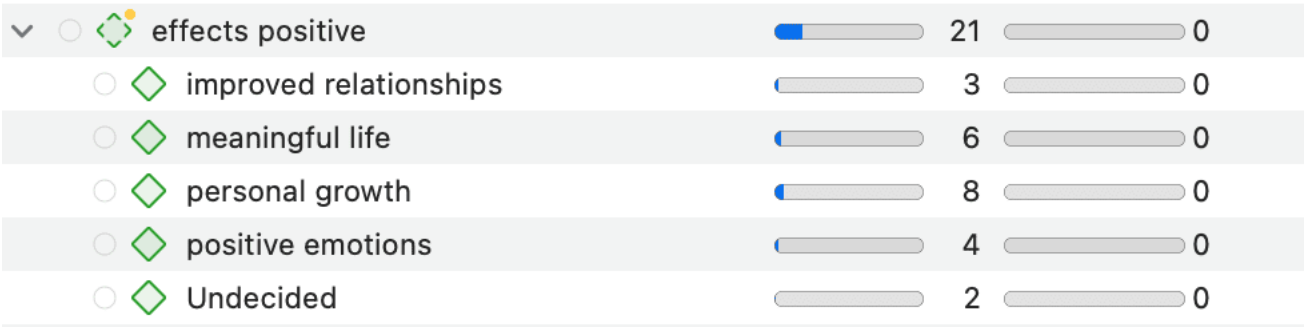
> Select a quotation. Its content is shown at the bottom of the screen. Assign the quotation by clicking on the checkbox of the subcodes that apply.

To speed up the process, you can press the number keys (1,2,3, usw.) to assign the selected quotation to subcode 1, 2, 3, usw.



Mutually exclusive: If you do not want to allow that a quotation is coded with two of the subcodes, activate the option **Mutually Exclusive**. This is a requirement for some content analysis approaches and for calculating inter-coder agreement. See Requirements for Coding.

> Once all quotations have been assigned to one or more subcodes, click on **Split Code**. The code that you split will be turned into a category. This is indicated by the changed code icon. If you click on the drop-down arrow in front of the code, you can expand the category to see the subcodes.



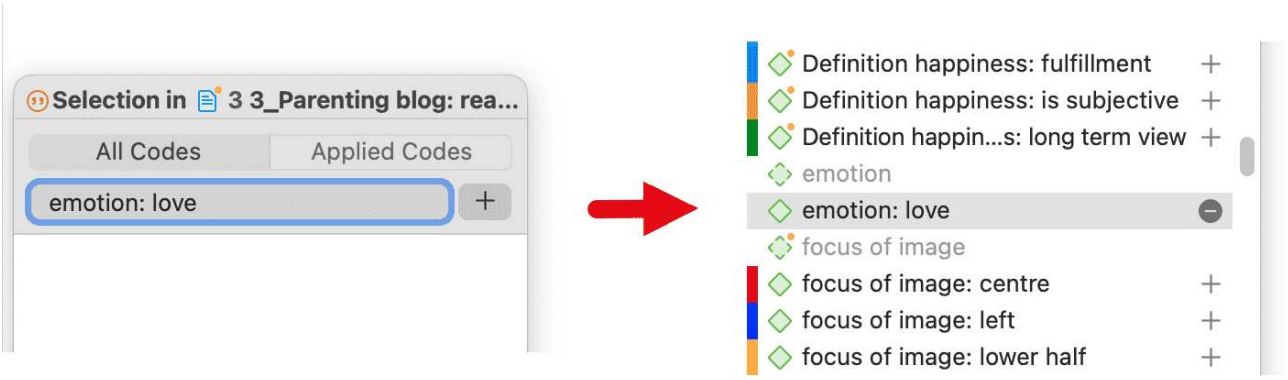
The groundedness of a category code is the number of quotations coded by all of its subcodes. Since you can apply several codes to the same quotation, the total for a category can differ from simply adding up quotations for all subcodes. Both sums are only equal, if you use subcodes in a mutual exclusive manner.

Creating category and subcodes in the coding dialog

When double-clicking on a quotation in the margin, or when highlighting a data segment and selecting the **Apply Codes** option from the context menu, the coding dialog opens. You can create a new category with a subcode directly here in the dialog, or add a new subcode to an existing category.

Adding a category with subcode

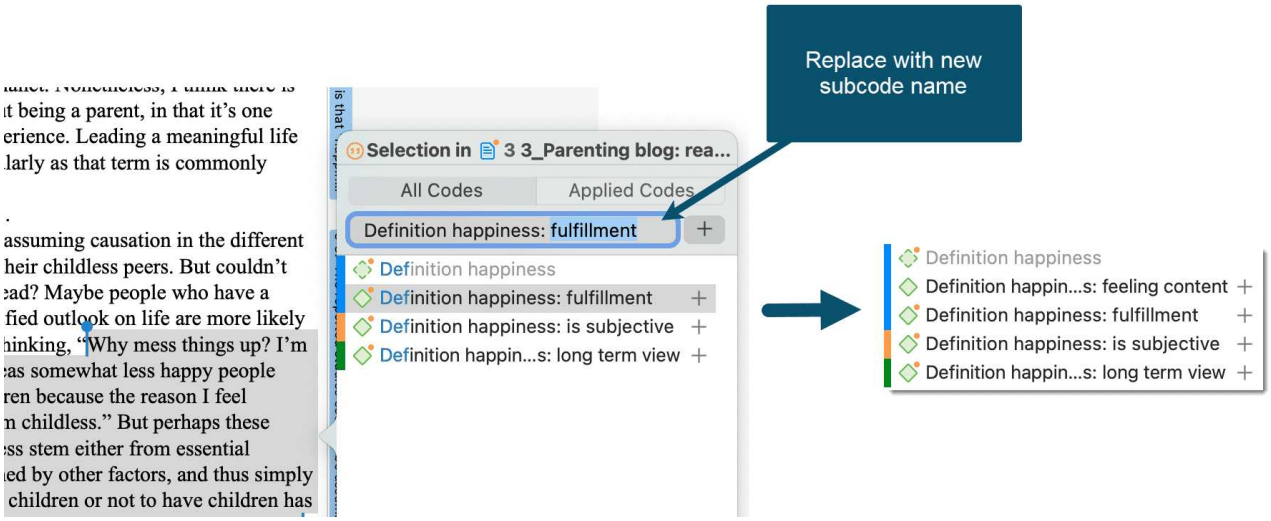
> In order to create a category code with a subcode, you simply have to enter as label: category name: subcode name:



Adding a new subcode to an already existing category

> Start typing the name of the category code. This filters the code list.

> Select one of the existing sub codes, highlight the subcode name and type over the new name, or delete that part of the name first and then add the new subcode name.



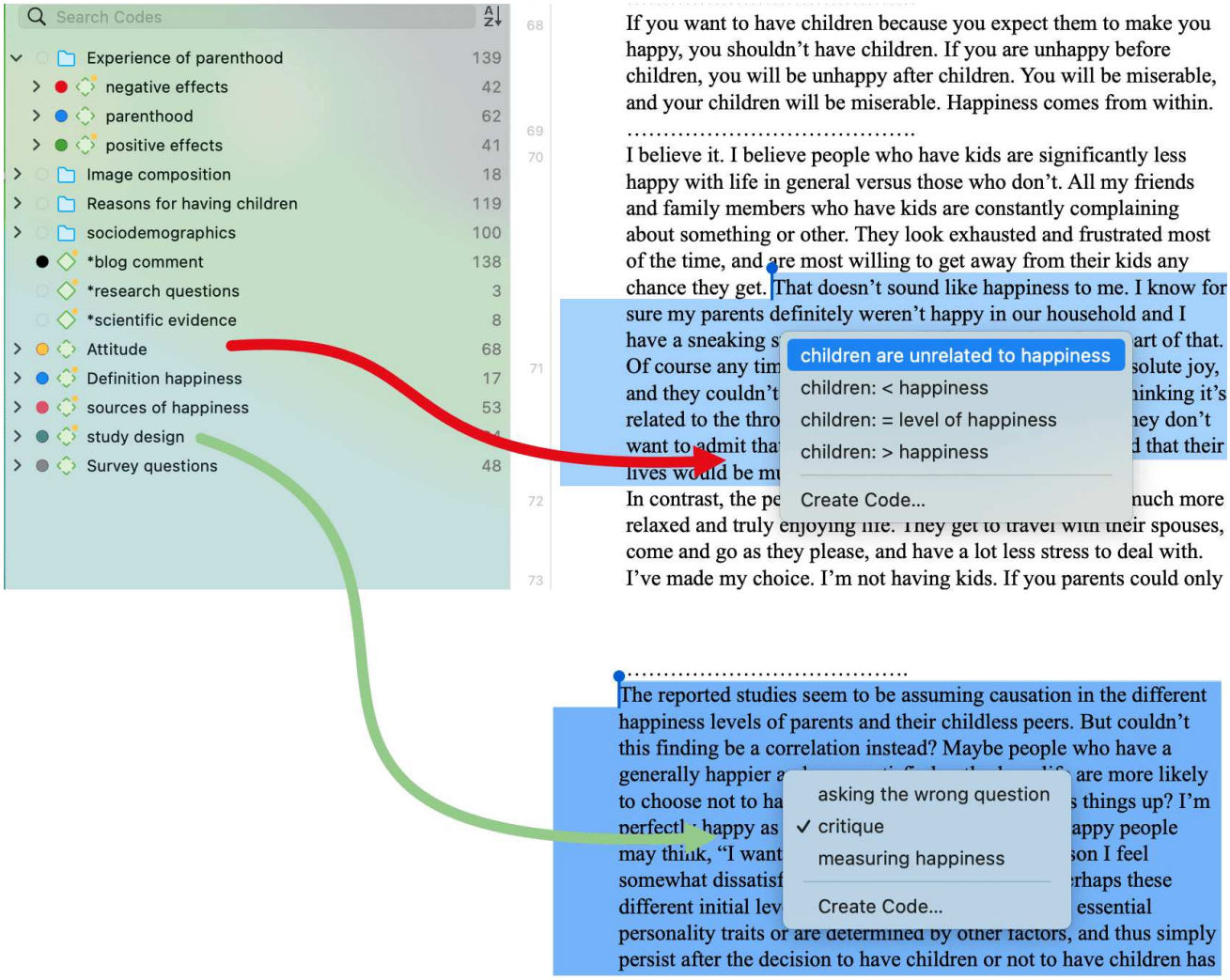
Easy coding with subcodes of a category

There is a very easy way to apply subcodes to your data via drag & drop coding.

> Highlight a section of your data and drag & drop a category code from other the project explorer, code browser or code manager onto the text.

A window pops up showing you the list of subcodes. Select one of the subcodes to code.

If you select an existing quotation and one or more subcodes of the selected category have already been applied, this is indicated by a check mark.

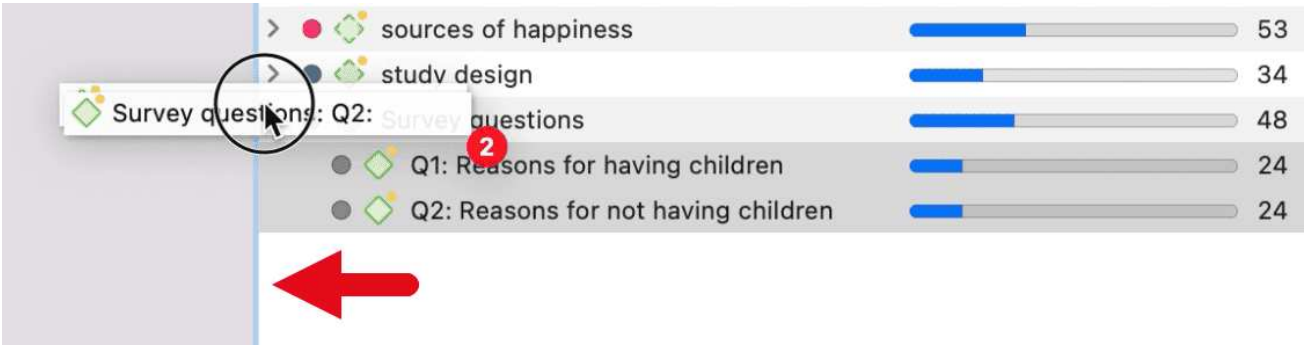


How to move subcodes out of a category

You have two options, you can move subcodes from one category to another category via drag & drop.

If you want to move subcodes out of a category to the first level, they become independent codes again. If you move all subcodes, the category code also becomes an independent code again.

> Highlight the subcodes you want to move and drag them to the left side until you see a blue vertical line, then drop:

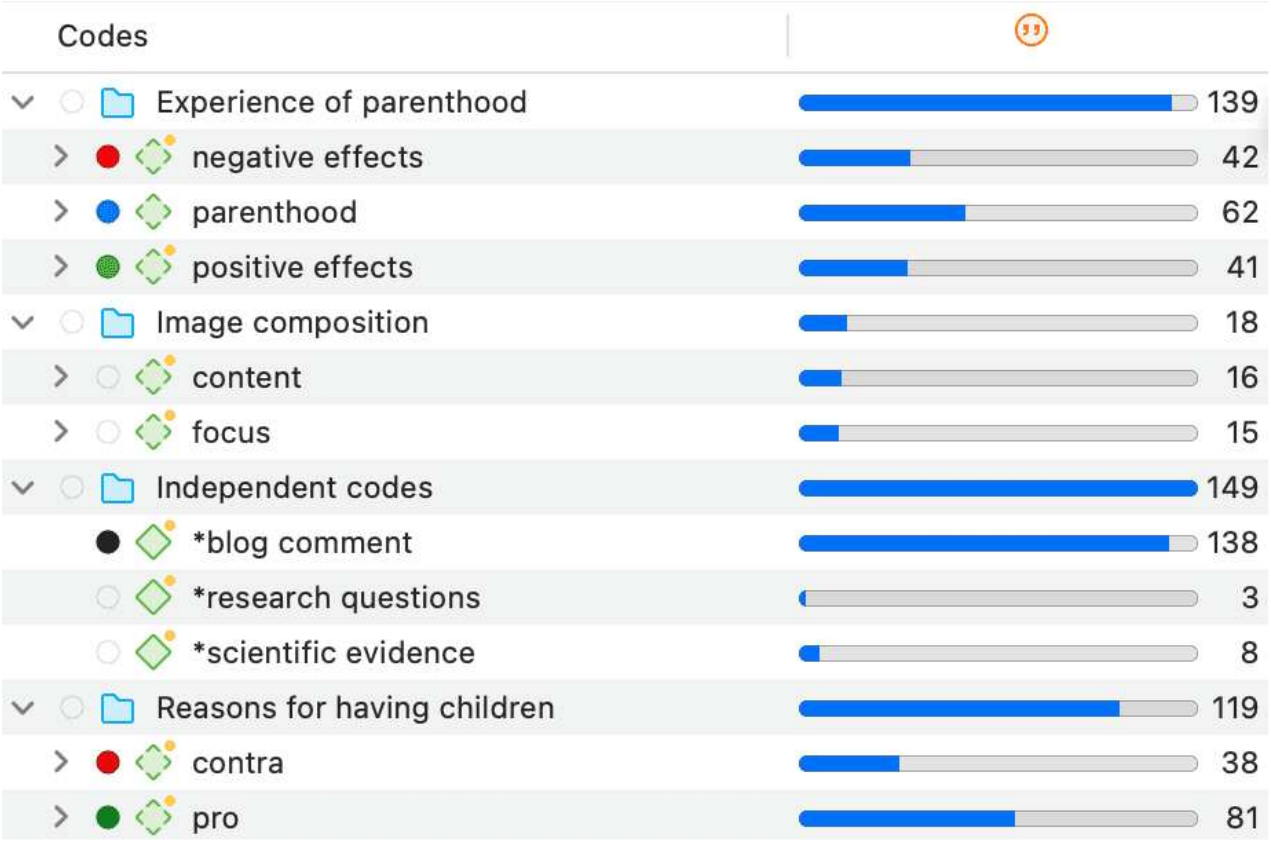


The subcodes will be sorted into your code list in alphabetic order. The groundedness of the category wil be adjusted. In the example illustrated below, all subcodes were moved out of the category; the category has become an independent code with groundedness 0:

Organizing Codes in Folders

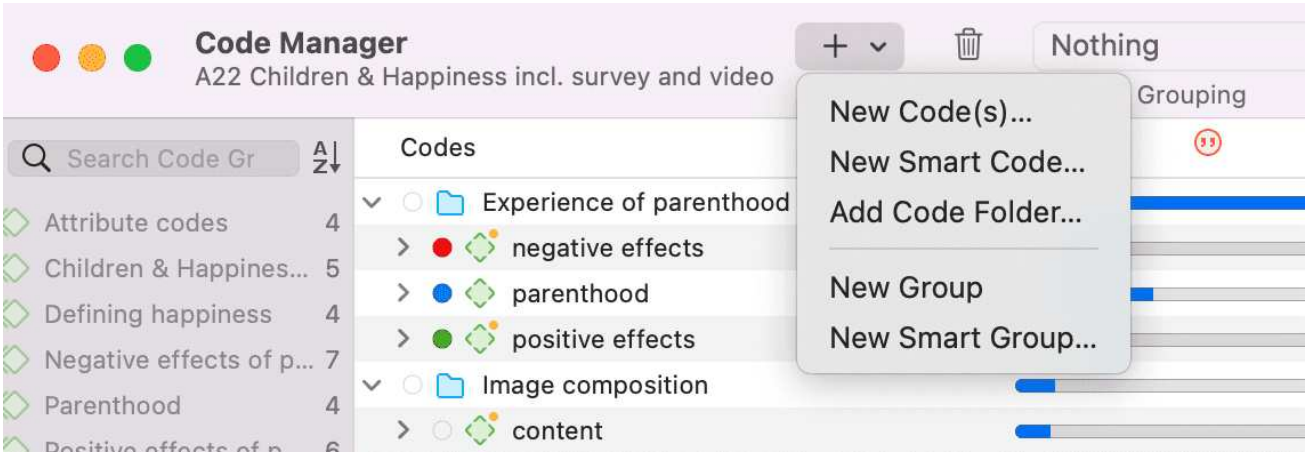
Independent codes or categories with their subcodes can be organized into folders. In contrast to code groups, a code or a category cannot be in more than one folder. The folder structure is hierarchical, code groups are not.

Folders can be contained in other folders. There might be projects that require a fourth level of organization. Below you find an example with three levels. See also the recommendations in the chapter How to build an effective code system.



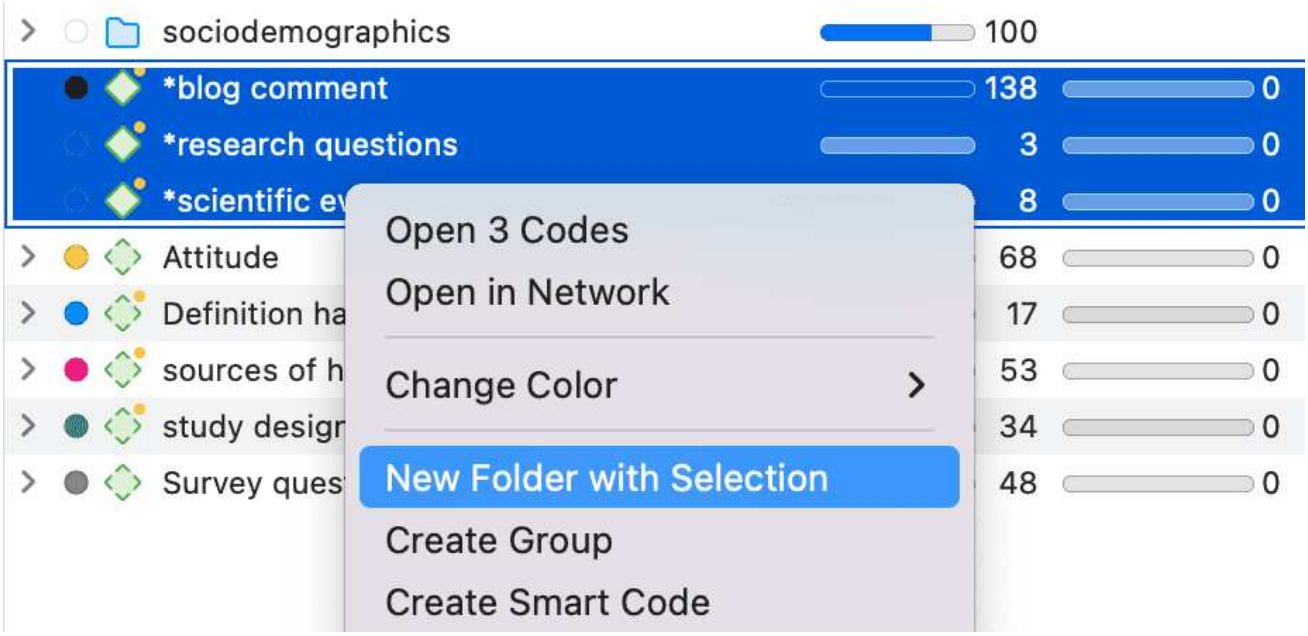
How to create folders

> In the Code Manager, click on the drop-down next to the plus and select Add Code Folder.



Or:

> Select one or more codes or categories, right-click and select the option New Folder with Selection from the context menu.



If you delete a folder, all content in the folder is also deleted.

How to move items between folders or out of a folder

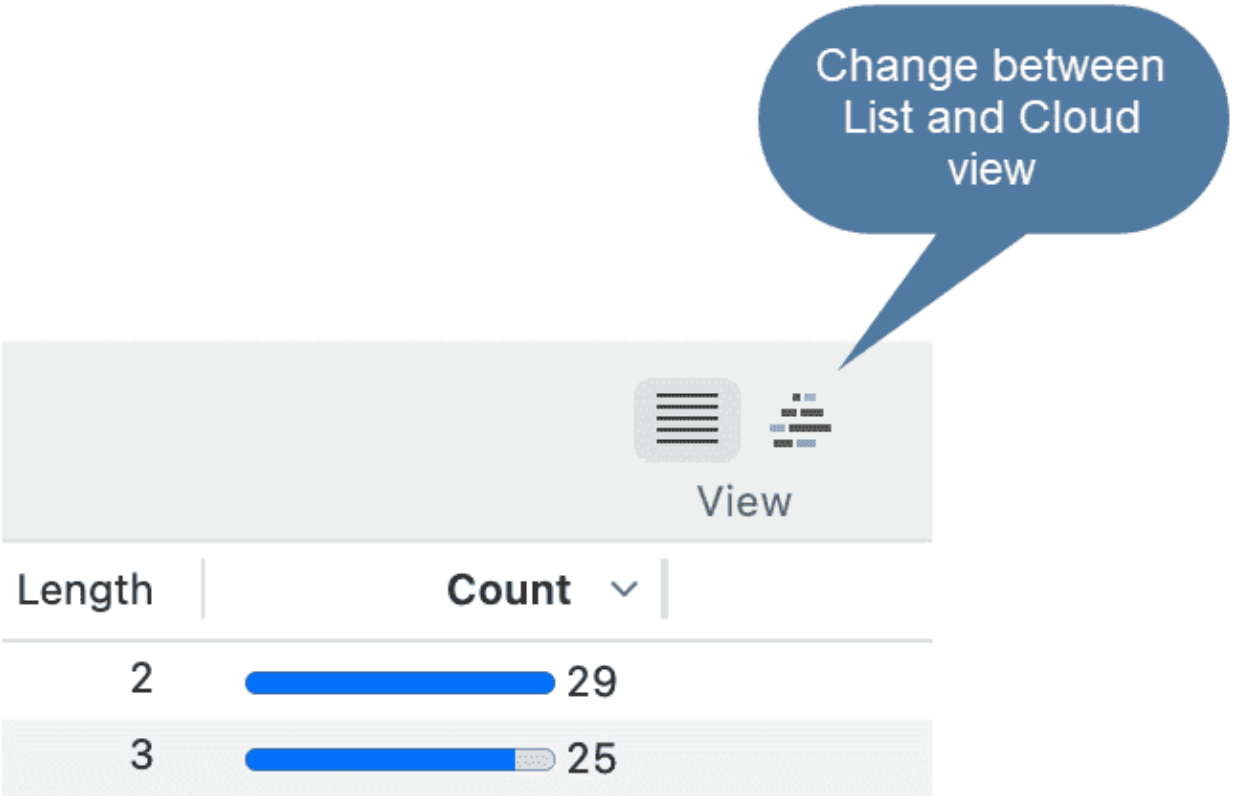
You have two options: You can move independent codes, categories, or subcodes from one folder to another folder via drag & drop. The second option is to highlight all items that you want to move, and drag them to the left side until you see a blue vertical line; then drop

Exploring Coded Data

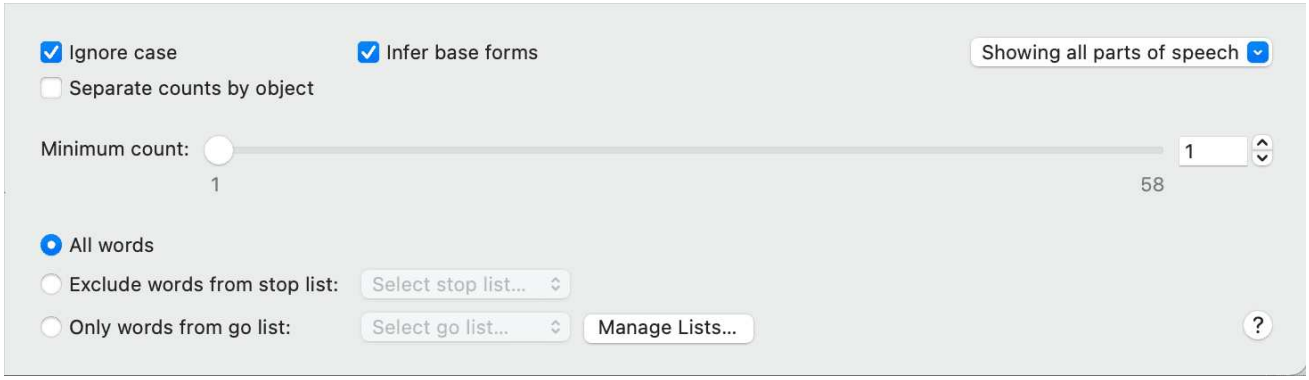
To explore the words that have been used in the quotations linked to one or more codes, you can create a word list or word cloud. Word lists and word clouds are described in detail in the section Exploring Data.

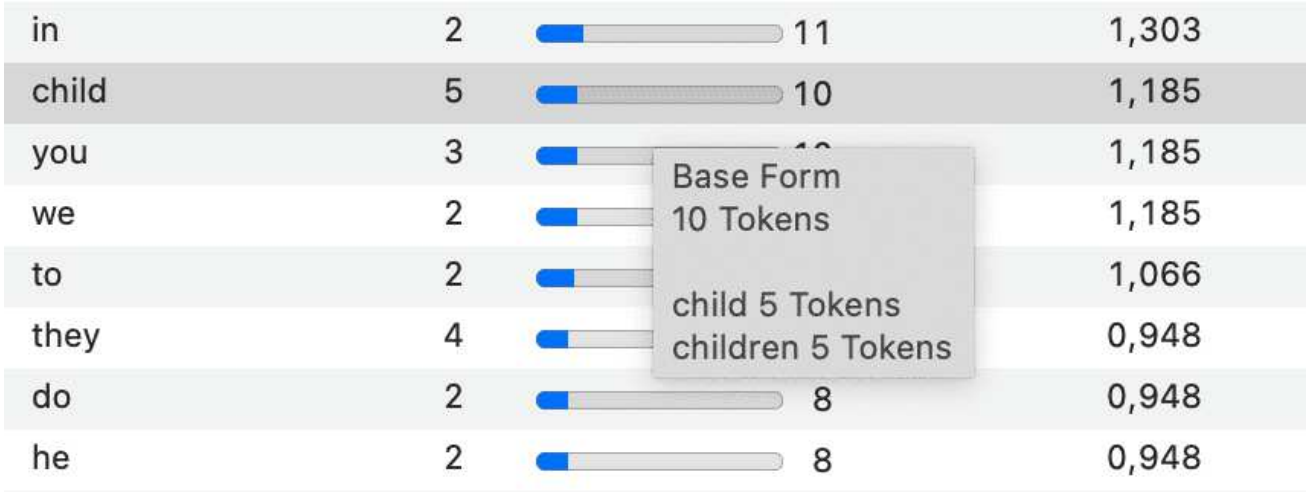
> To create a **Word Cloud** or **Word List**, right-click on a code or code group somewhere in your project and select either the word cloud or word list option from the context menu.

You can toggle between the display Word List or Word Cloud:



You can aggregate the words by activating the two options 'Ignore Case' and 'Infer base forms'. The latter summarizes for instance 'child' and 'children', or 'bring', 'brings' and 'brought'. If you use this option you can hoover over a word, and it will tell you which words have been combined under the term.





Parts of Speech

You can also select to only display words that belong to a certain category of words, the so-called 'parts of speech'.

A part of speech is a term used in traditional grammar for one of the main categories into which words are classified according to their functions in sentences, such as nouns or verbs. Also known as word classes, these are the building blocks of grammar.

Commonly listed English parts of speech are noun, verb, adjective, adverb, pronoun, preposition, conjunction, interjection, numeral, article, or determiner.

Noun

Nouns are a person, place, thing, or idea. They can take on a myriad of roles in a sentence, from the subject of it all to the object of an action. They are capitalized when they're the official name of something or someone, called proper nouns in these cases. Examples: pirate, Caribbean, ship, freedom, Captain Jack Sparrow.

Pronoun

Pronouns stand in for nouns in a sentence. They are more generic versions of nouns that refer only to people. Examples: I, you, he, she, it, ours, them, who, which, anybody, ourselves.

Verb

Verbs are action words that tell what happens in a sentence. They can also show a sentence subject's state of being (is, was). Verbs change form based on tense (present, past) and count distinction (singular or plural). Examples: sing, dance, believes, seemed, finish, eat, drink, be, became

Adjective

Adjectives describe nouns and pronouns. They specify which one, how much, what kind, and more. Adjectives allow readers and listeners to use their senses to imagine something more clearly. Examples: hot, lazy, funny, unique, bright, beautiful, poor, smooth.

Adverb

Adverbs describe verbs, adjectives, and even other adverbs. They specify when, where, how, and why something happened and to what extent or how often. Examples: softly, lazily, often, only, hopefully, softly, sometimes.

Preposition

Prepositions show spacial, temporal, and role relations between a noun or pronoun and the other words in a sentence. They come at the start of a prepositional phrase, which contains a preposition and its object. Examples: up, over, against, by, for, into, close to, out of, apart from.

Conjunction

Conjunctions join words, phrases, and clauses in a sentence. There are coordinating, subordinating, and correlative conjunctions. Examples: and, but, or, so, yet, with.

Articles and Determiners

Articles and determiners function like adjectives by modifying nouns, but they are different from adjectives in that they are necessary for a sentence to have proper syntax. Articles and determiners specify and identify nouns, and there are indefinite and definite articles. Examples: articles: a, an, the; determiners: these, that, those, enough, much, few, which, what.

Some traditional grammars have treated articles as a distinct part of speech. Modern grammars, however, more often include articles in the category of determiners, which identify or quantify a

noun. Even though they modify nouns like adjectives, articles are different in that they are essential to the proper syntax of a sentence, just as determiners are necessary to convey the meaning of a sentence, while adjectives are optional.

Interjection

Interjections are expressions that can stand on their own or be contained within sentences. These words and phrases often carry strong emotions and convey reactions. Examples: ah, whoops, ouch, yabba dabba do!

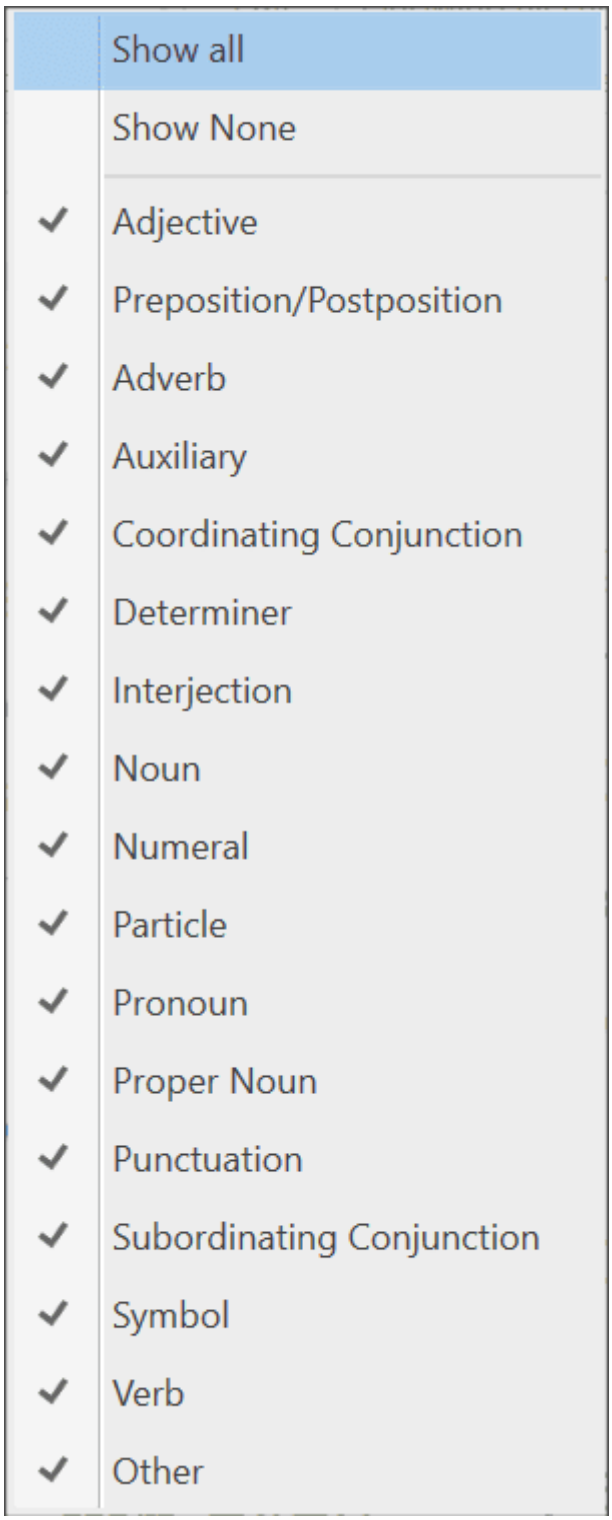
Open and Closed Word Classes

The parts of speech are commonly divided into open classes (nouns, verbs, adjectives, and adverbs) and closed classes (pronouns, prepositions, conjunctions, articles/determiners, and interjections). The idea is that open classes can be altered and added to as language develops and closed classes are pretty much set in stone. For example, new nouns are created every day, but conjunctions never change.

In contemporary linguistics, the label part of speech has generally been discarded in favor of the term word class or syntactic category. These terms make words easier to qualify objectively based on word construction rather than context. Within word classes, there is the lexical or open class and the function or closed class.

Source: The 9 Parts of Speech: Definitions and Examples

In ATLAS.ti, you can select one or more of the following parts of speech:



All other options are explained in the chapter Exploring Text Data

Merging Codes

Video Tutorial:

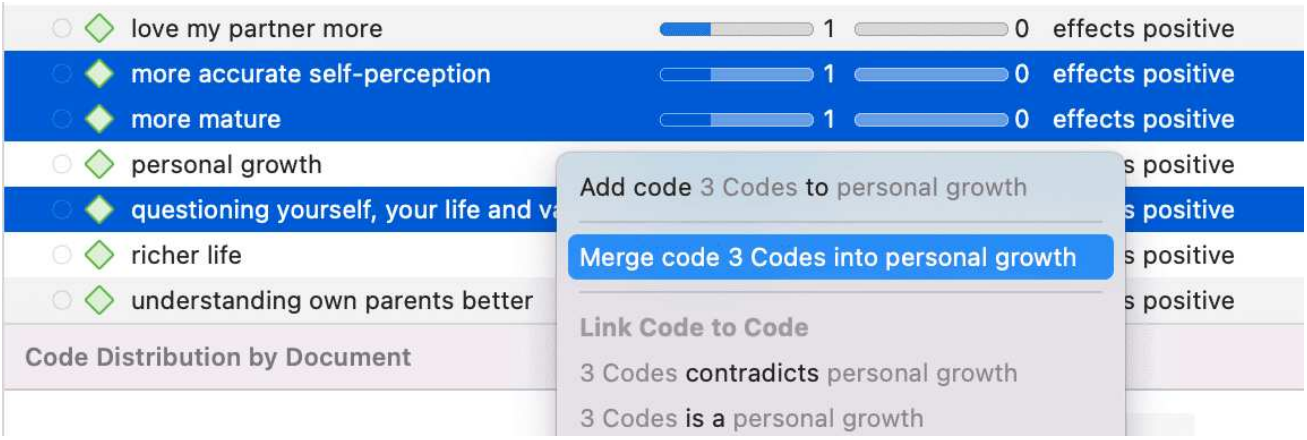
You may begin your coding very close to the data generating lots of codes. In order not to drown in a long list of codes, you need to aggregate those codes from time to time, which means merging and renaming them to reflect the higher abstract level. Another reason for merging is that you realize that two codes have the same meaning, but you have used different labels.

Moving all low frequency codes under a category code to "clean up" is not a good solution. You may start by using descriptive labels for independent codes, but you need to aggregate them at some point, usually after having gone through your first few sources. If you have too many of those low frequency codes, you create a proliferating coding system that becomes unmanageable (Bazeley, 2013). In addition, it will also not be very useful for your analysis.

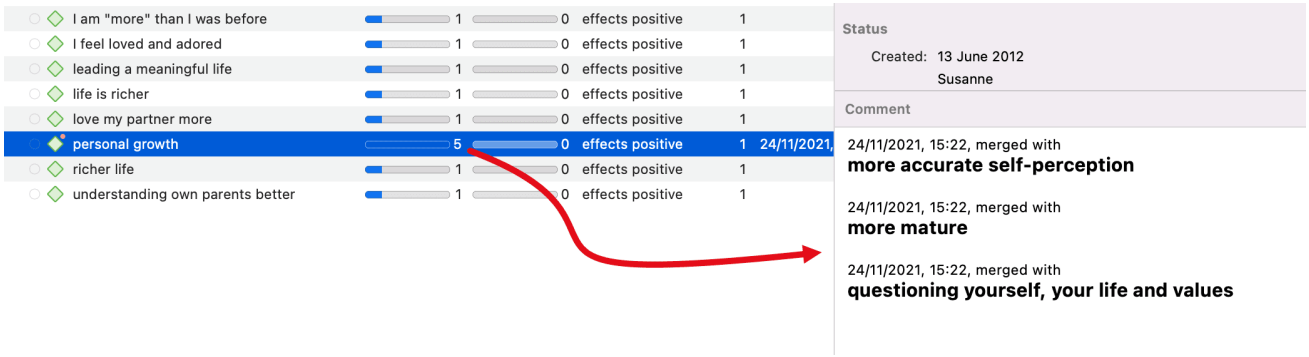
There are a few exceptions as always. Codes with low frequencies that capture an exceptionally insightful thought, for instance, don't and also should not be merged. There should only be a few of those and not dozens or hundreds.

This is how you do it:

> Select two or more codes in the Code Manager and drag them to the code where you want to merge them into. A menu opens. Select the second option Merge code ... into ...



A comment is automatically inserted into the target code that provides an audit trail of which codes have been merged. If the codes that are merged had a comment, these comments are also added to the target code.


I am "more" than I was before 1 0 effects positive 1
I feel loved and adored 1 0 effects positive 1
leading a meaningful life 1 0 effects positive 1
life is richer 1 0 effects positive 1
love my partner more 1 0 effects positive 1
personal growth 5 0 effects positive 1 24/11/2021,
richer life 1 0 effects positive 1
understanding own parents better 1 0 effects positive 1
Status
Created: 13 June 2012
Susanne
Comment
24/11/2021, 15:22, merged with
more accurate self-perception
24/11/2021, 15:22, merged with
more mature
24/11/2021, 15:22, merged with
questioning yourself, your life and values

Splitting a Code

> *"Inevitably, not all codes you produce will continue to prove useful. Some will be too general, others too specific to one or two segments of data (see Merging Codes). With the exception of contextual codes, a category that is so broad or so vaguely defined that it codes a very large number of passages or very lengthy passages is less likely to be useful in analysis"* (Bazeley, 2013:185).

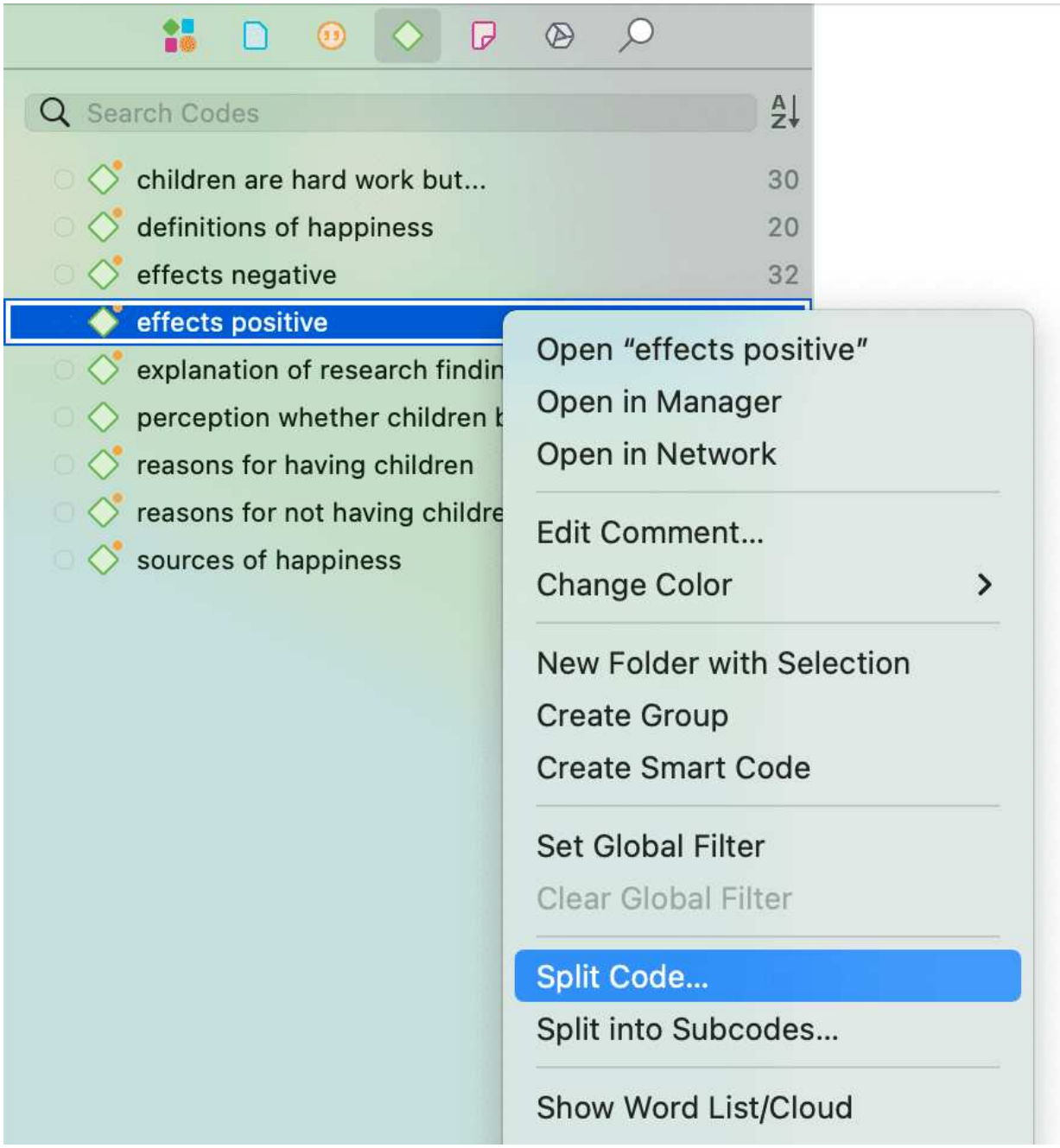
Splitting a code is necessary if you have been lumping together many quotations under a broad theme. This is a suitable approach for a first run through to get an idea about your data. At some point those codes need to be split up into codes with a lower number of codings or into subcodes of a category to be meaningful for analysis.

This can be done in two ways:

1. Splitting into independent codes
2. Splitting into subcodes (creating a category)

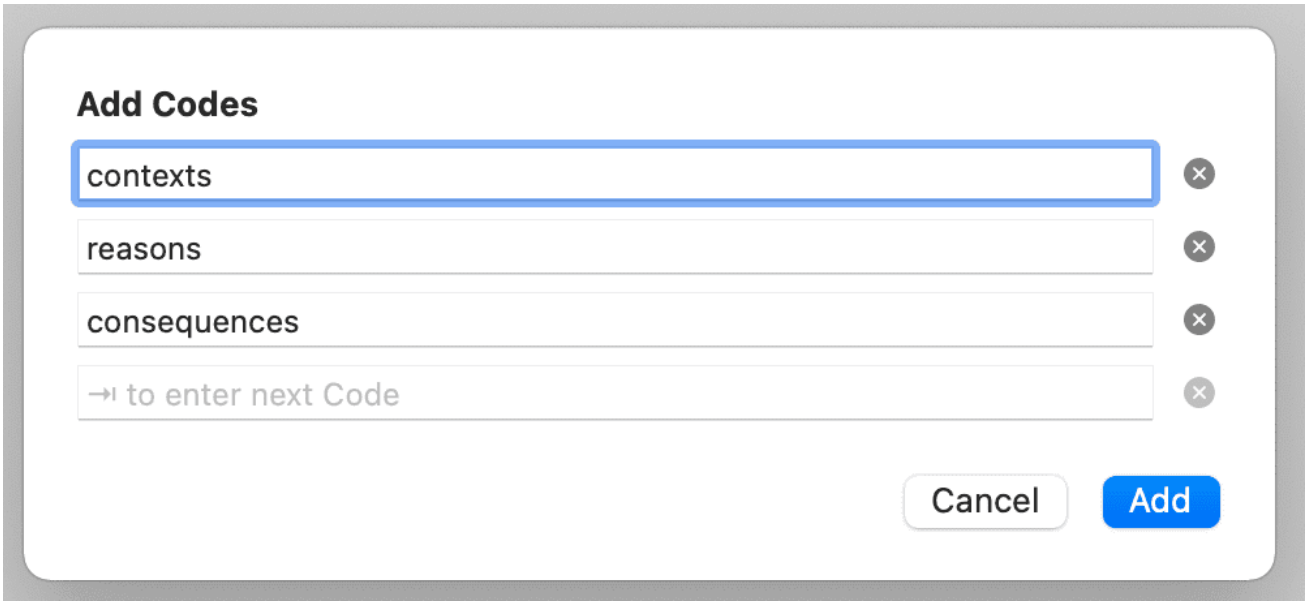
Splitting a code into independent codes

> Right-click a code that you want to split in the Code Manager or Project Explorer and select **Split Code** from the context menu.



In the Split Code tool, you see the list of the quotations coded with the code.

Click on **Add Codes** to enter the labels for the subcodes. After entering the first code, press the right arrow (→|) to move to the next entry field to enter the second label, and so on. Once you are done, click **Add**.

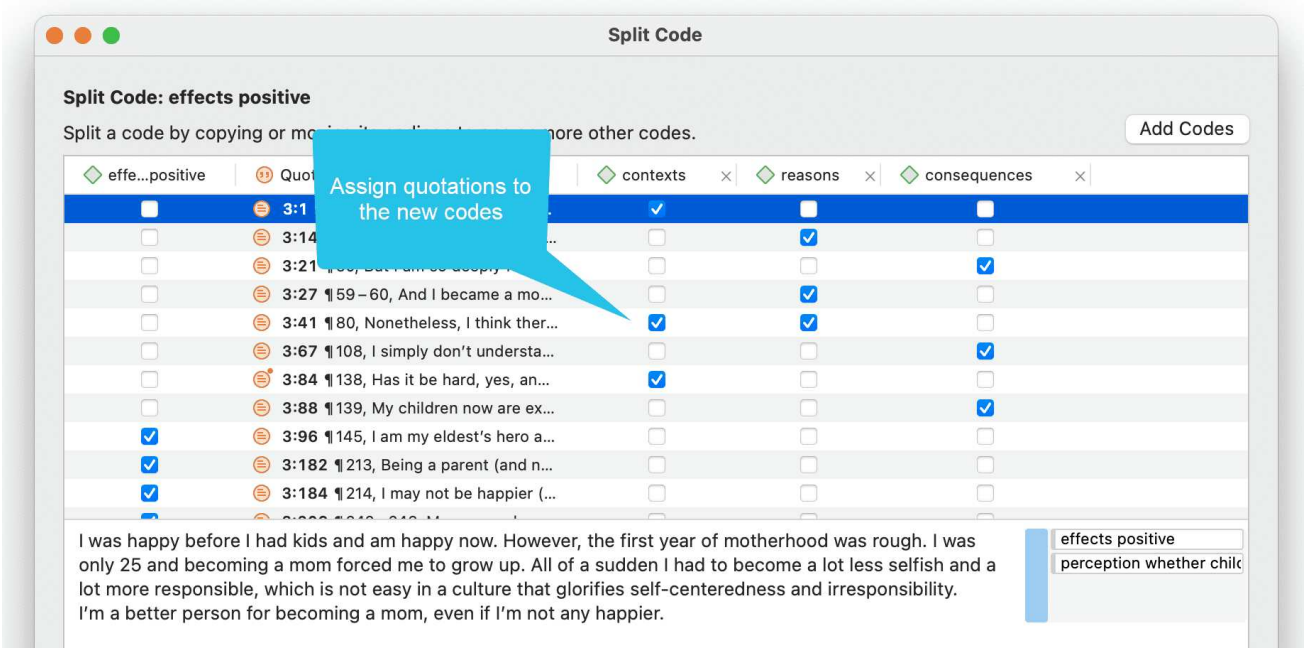


By default, the name of the original codes is added to the first column of the table. All quotations are still linked to it. The next step is to assign the quotations to the new codes you have created. If a quotation does not fit into any of these new codes, you can just leave it linked to the original code.

This is how you assign the quotations to one or more subcodes:

> Select a quotation. Its content is shown at the bottom of the screen. Assign the quotation by clicking on the checkbox of the codes that apply. The quotation is automatically unlinked from the code that you are splitting.

To speed up the process, you can press the number keys (1,2,3, usw.) to assign the selected quotation to subcode 1, 2, 3, usw.



> After you have distributed some or all of the quotations into sub codes, click on **Split Code**. Now the new codes are created, and the quotations are assigned accordingly.

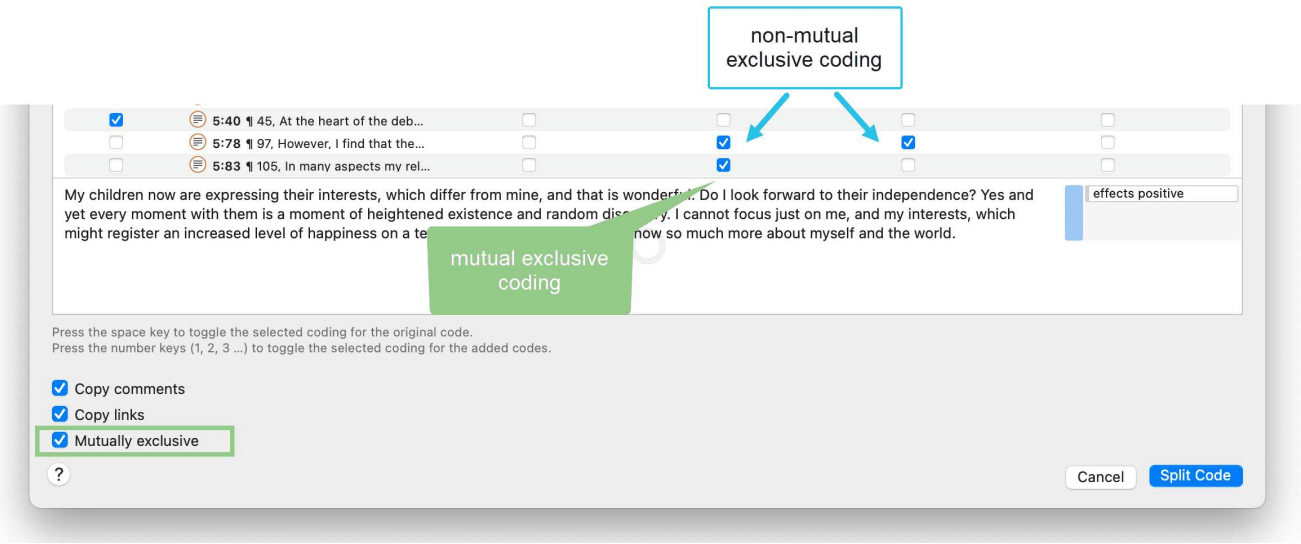
It is not required that you assign all quotations to the new codes. Quotations can remain linked to the original code, or also to the original code and any of the newly created codes.

Options

- **Copy Comments:** Select if you want all sub codes to have the same comment as the code you split.
- **Copy links:** Select if you want all sub codes to inherit existing links to other codes or memos.
- **Mutually exclusive:** If activated, you can assign a quotation to only one sub code. This is a requirement for some content analysis approaches and for calculating inter-coder agreement.

Mutually Exclusive Coding

If you do not want to allow that a quotation is coded with two of the codes, activate the option **Mutually Exclusive**. This is a requirement for some content analysis approaches and for calculating inter-coder agreement. See Requirements for Coding.



Splitting a code into a category and subcodes

> Select a code that you want to split into subcodes.

> Right-click and select the option **Split into Subcodes**. The Split Code tool opens.

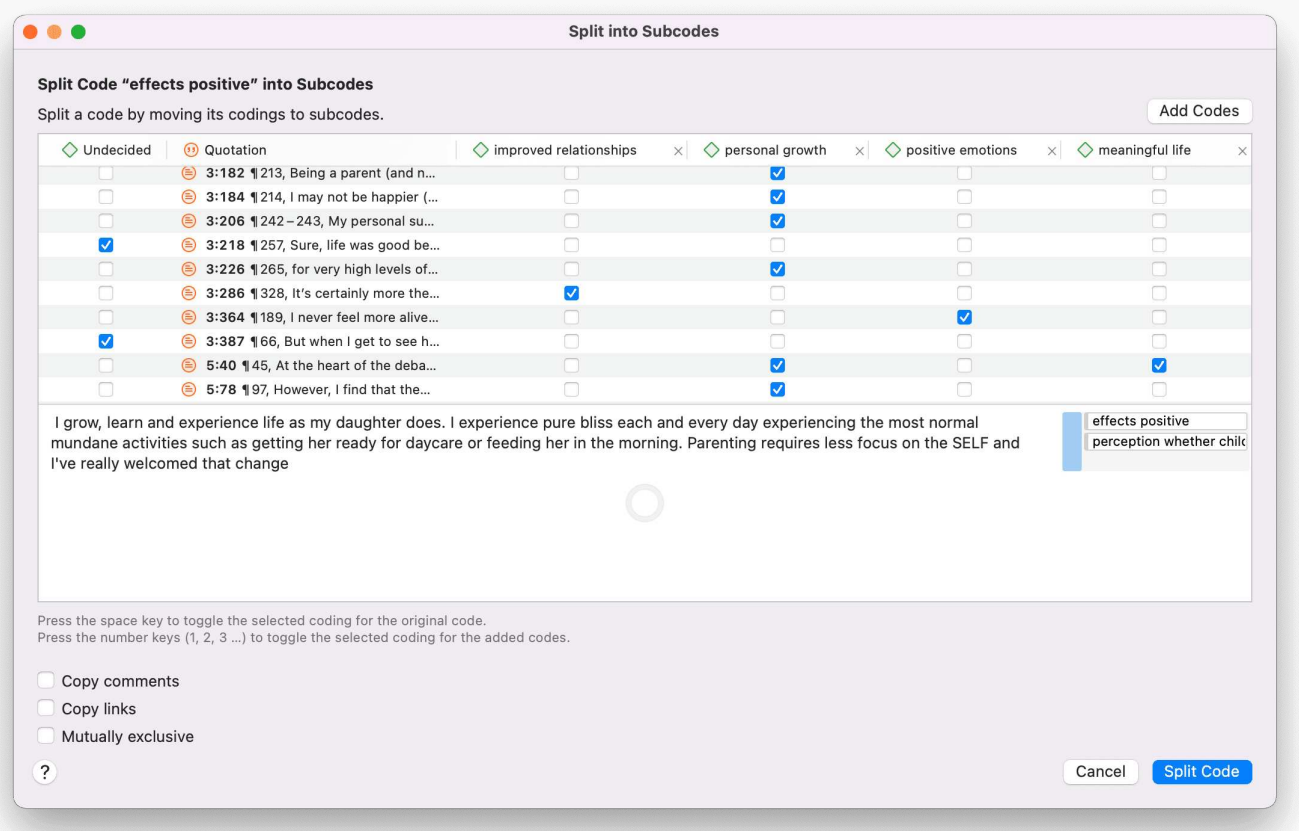
> Click on **Add Codes** to enter the labels for the subcodes. After entering the first code, press the right arrow (→|) to move to the next entry field to enter the second label, and so on. Once you are done, click on **Add**.

By default, a subcode with the name **Undecided** is added to the first column of the table. All quotations are added to this subcode. The next step is to assign the quotations to the new subcodes you have created. If a quotation does not fit into any of these subcodes, you can just leave it in the subcode 'Undecided'.

This is how you assign the quotations to one or more subcodes:

> Select a quotation. Its content is shown at the bottom of the screen. Assign the quotation by clicking on the checkbox of the subcodes that apply. The quotation is automatically unlinked from the subcode 'Undecided'.

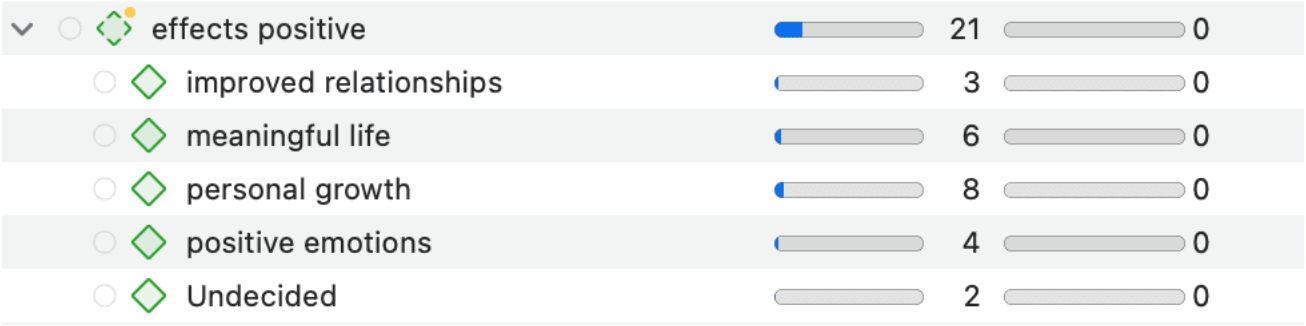
To speed up the process, you can press the number keys (1,2,3, usw.) to assign the selected quotation to subcode 1, 2, 3, usw.



Mutually exclusive: If you do not want to allow that a quotation is coded with two of the subcodes, activate the option **Mutually Exclusive**. This is a requirement for some content analysis approaches and for calculating inter-coder agreement. See Requirements for Coding.

> Once all quotations have been assigned to one or more subcodes, click on **Split Code**. The code that you split will be turned into a category. This is

> indicated by the changed code icon. If you click on the drop-down arrow in front of the code, you can expand the category to see the subcodes.



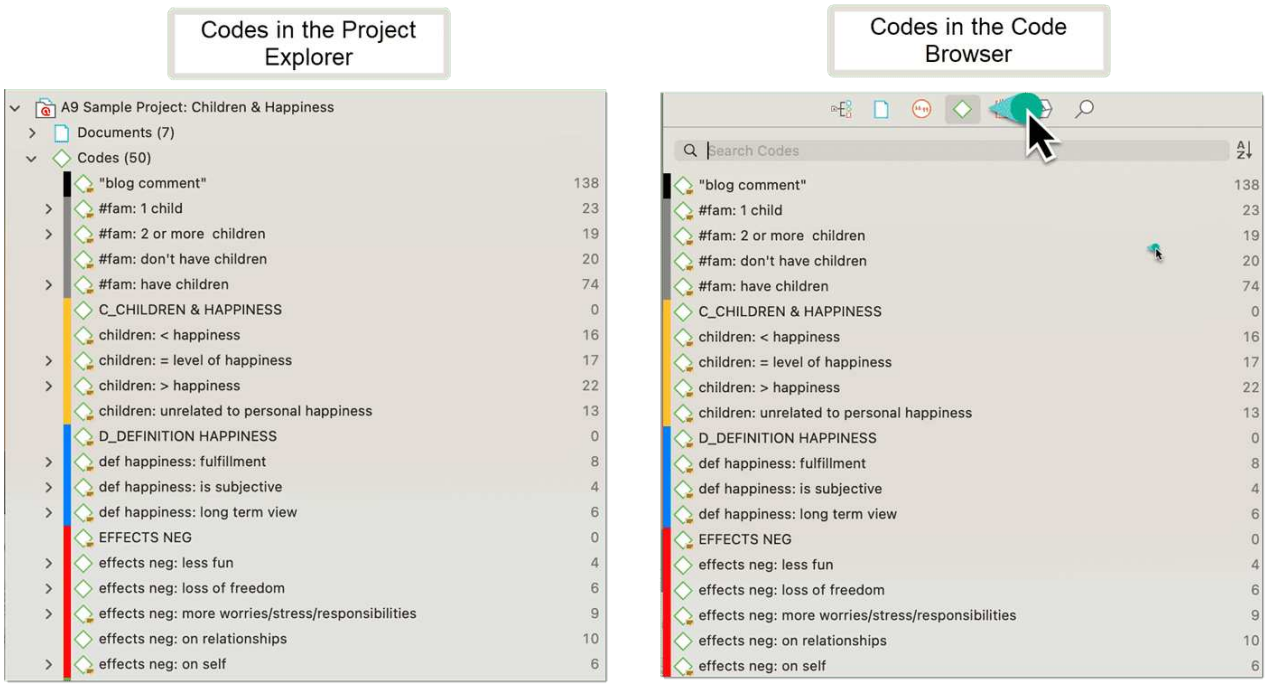
The groundedness of a category code is the number of quotations coded by all of its subcodes. Since you can apply several codes to the same quotation, the total for a category can differ from simply adding up quotations for all subcodes. Both sums are only equal, if you use subcodes in a mutual exclusive manner.

Display of Codes in the Project Explorer and Code Browser

In the Project Explorer under the main Codes branch, all codes are listed. If you only want to see the list of codes, click on the code icon in the toolbar. The number behind a main codes branch, e.g., (11) is the total number of first level entries. These can be folders, categories and independent codes.

The number behind a folder, is the number of quotations coded by independent codes or sub codes that are contained within the folder. As you can apply multiple codes to the same quotation (i.e., multi-value coding), the total can be different from adding up all the numbers for all independent and all subcodes.

The number behind a category code is the number of quotations coded by all of its sub codes. As you can apply multiple codes to the same quotation, the total for a category can be different from adding up the numbers for each subcode. It is only the same if you apply subcodes in a mutual exclusive manner, as for example required for inter-code agreement analysis

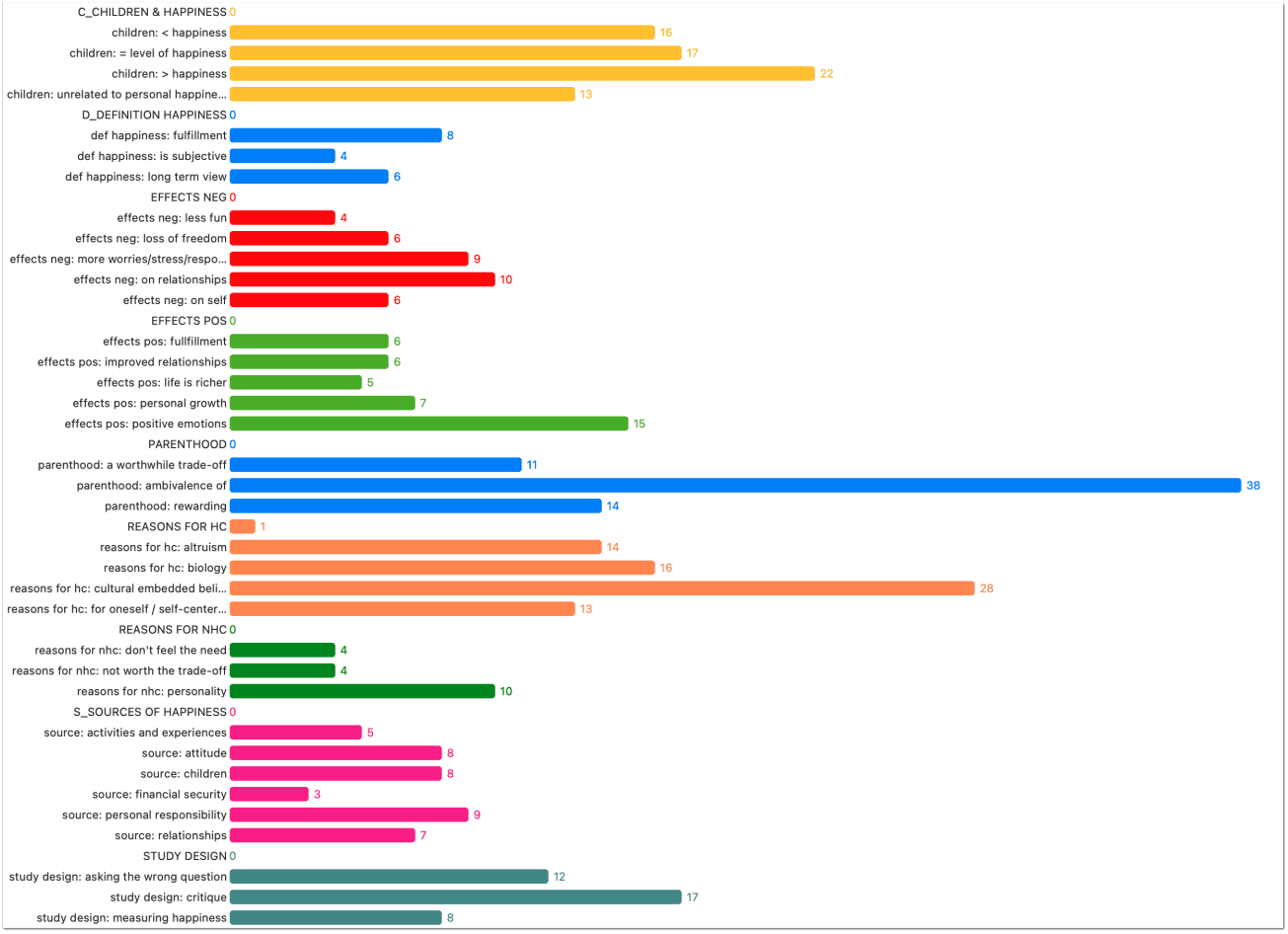


View Options the Code Manager

There are three **View Modes:** You can view codes in list view (default), as cloud or in form of a bar chart:

Code List as Bar Chart

> Select the **Bar Chart** to visualize your code list in form of a bar chart.



The codes in the bar chart view also have a context menu. Thus, also from here, you can start the same actions as in the standard view.

Code Cloud

> Select the **Cloud** option to visualize your code list in form of a word cloud:

If you right-click on a code, the same context menu opens as in 'List' view. Thus, in the cloud view you can start the same actions as in the regular view. You can for instance rename codes, set a color, split codes, or open a network on one or multiple codes.

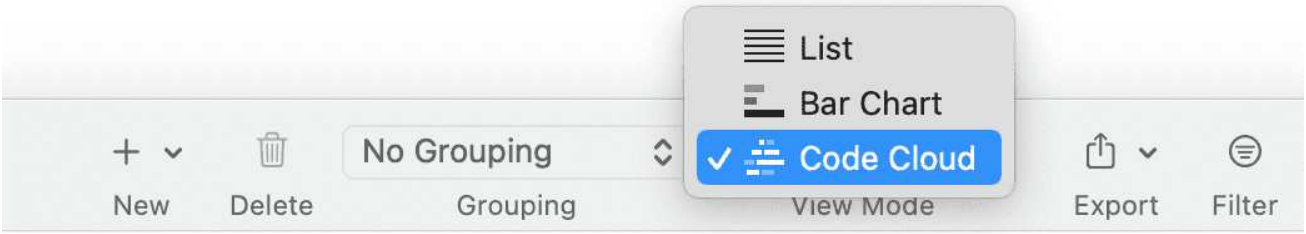
The chart "Code Distribution by Document" that you see below the code list is explained in the chapter Analysing Code Distributions ,

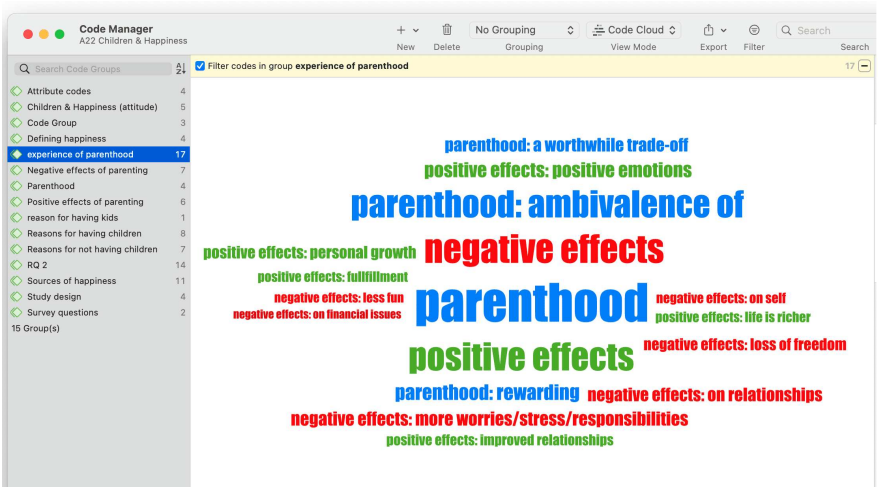
Display Code List as Code Cloud or Bar Chart

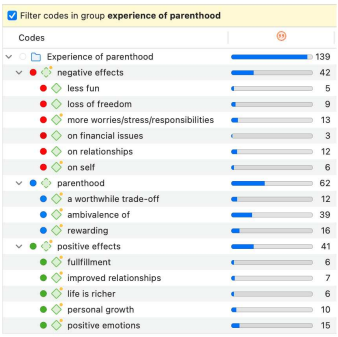
An alternative way to view your list of codes is in form of a code cloud or a bar chart.

Code Cloud

> In the Code Manager, select the **View Mode** and select the **Code Cloud** option.



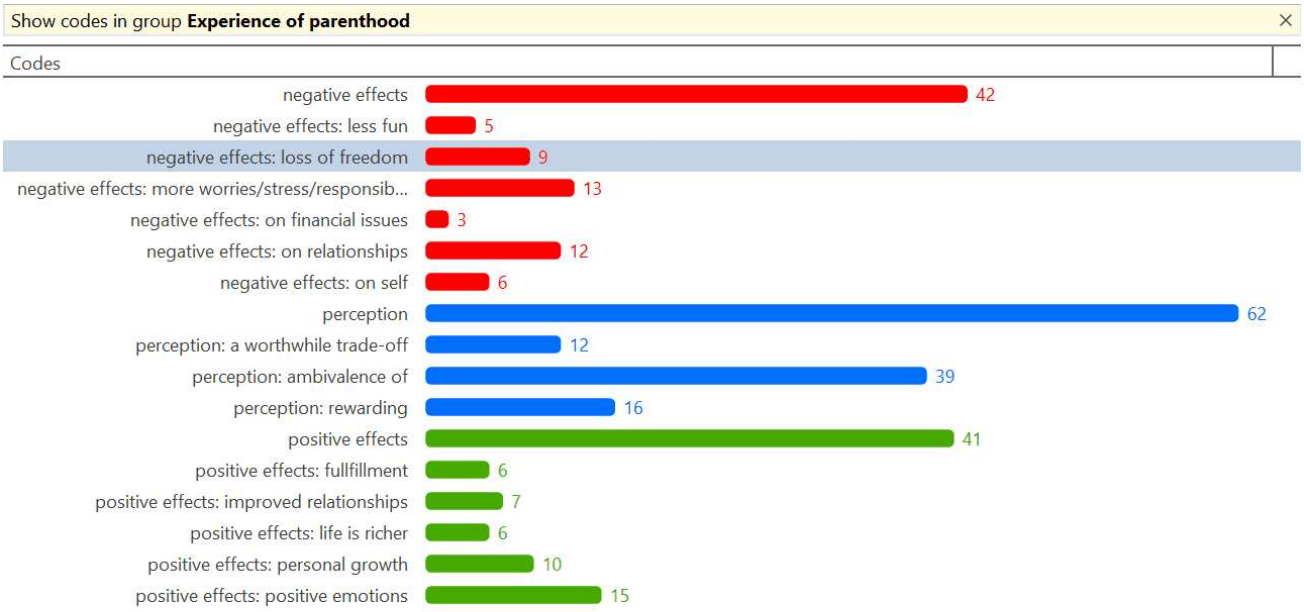




The image above shows a code list filtered by a code group that contains three categories and their subcodes. The subcodes are displayed with their long names in the code cloud (category: subcode).

Code List as Bar Chart

> Select the option **Bar Chart** to visualize your code list in form of a bar chart.

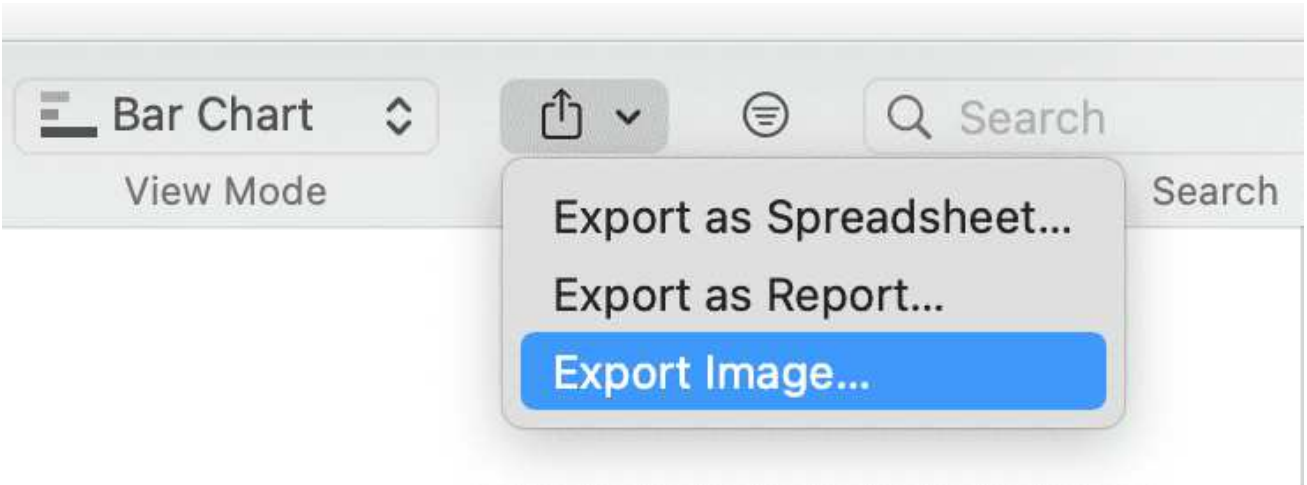


If you right-click on a code, the same context menu opens as in 'List' view. Thus, in the cloud view you can start the same actions as in the regular view. You can for instance rename codes, split or merge codes, or open a network on one or multiple codes.

Printing the Code-Cloud or the Bar Chart View

You can print both the 'Cloud' view and the 'Bar Chart'. In order to do so:

> Select the **Export** button in the toolbar and from there **Export Image**. The image is saved as .png file.



Working With Code Groups

Code groups help in organizing codes, they make it easy to access specific codes from a long list of codes, and they allow you to create any kind of filter you need for querying your data.

Code groups can be created in two ways -- you can create them in the Code Group Manager, or in the side panel of the Code Manager.

> To open the **Code Manager**, double-click on the main code branch in the Project Explorer or click on the codes button in the toolbar and select Code Manager from the dropdown menu.

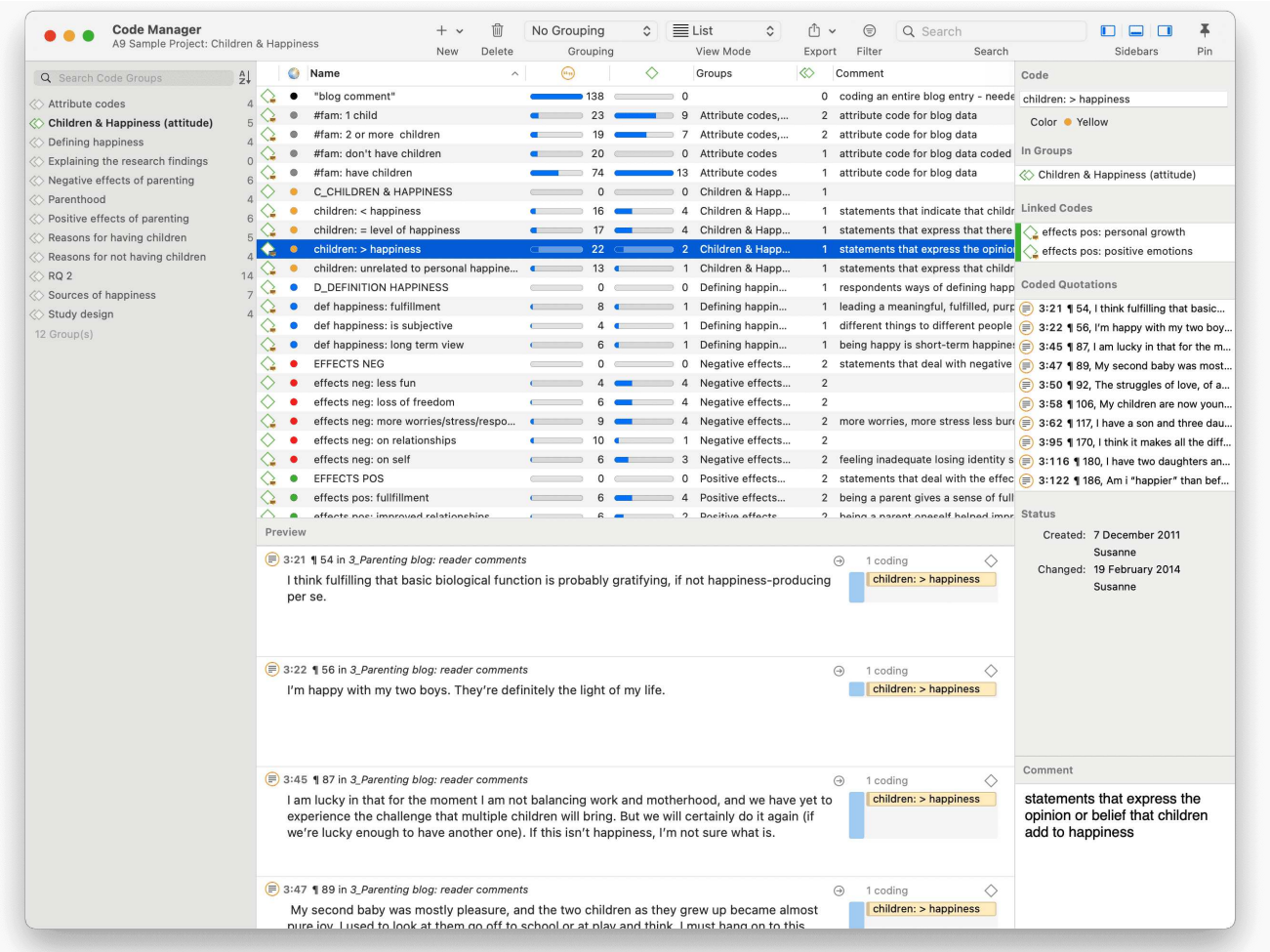
> Select a few codes and drag them into the filter area on the left-hand side. After dropping the codes, the code group is automatically created. If you want to change the default name, left-click on the code group.

> When you click on the newly created code group, only the codes from this group will show up in the list on the right-hand side. This allows you to quickly access codes in your list without having to scroll the list all the time.

> To show all codes again, click on the **minus (-)** in the yellow pane that shows up on top of the code list when selecting a group.

For more information on how to work with groups, see Working With Groups.

If you are interested in learning about the differences between codes, code groups and smart codes, please view this video.


Code Manager
A9 Sample Project: Children & Happiness
New
Delete
No Grouping
Grouping
List
View Mode
Export
Filter
Search
Sidebars
Pin
Search Code Groups
Attribute codes 4
Children & Happiness (attitude) 5
Defining happiness 4
Explaining the research findings 0
Negative effects of parenting 6
Parenthood 4
Positive effects of parenting 6
Reasons for having children 5
Reasons for not having children 4
RQ 2 14
Sources of happiness 7
Study design 4
12 Group(s)
Name
Groups
Comment
"blog comment" 138 0 0 coding an entire blog entry - neede
#fam: 1 child 23 9 Attribute codes,... 2 attribute code for blog data
#fam: 2 or more children 19 7 Attribute codes,... 2 attribute code for blog data
#fam: don't have children 20 0 Attribute codes 1 attribute code for blog data coded
#fam: have children 74 13 Attribute codes 1 attribute code for blog data
C_CHILDREN & HAPPINESS 0 0 Children & Happ... 1
children: < happiness 16 4 Children & Happ... 1 statements that indicate that childr
children: = level of happiness 17 4 Children & Happ... 1 statements that express that there
children: > happiness 22 2 Children & Happ... 1 statements that express the opinio
children: unrelated to personal happine... 13 1 Children & Happ... 1 statements that express that childr
D_DEFINITION HAPPINESS 0 0 Defining happin... 1 respondents ways of defining happ
def happiness: fulfillment 8 1 Defining happin... 1 leading a meaningful, fulfilled, purp
def happiness: is subjective 4 1 Defining happin... 1 different things to different people
def happiness: long term view 6 1 Defining happin... 1 being happy is short-term happines
EFFECTS NEG 0 0 Negative effects... 2 statements that deal with negative
effects neg: less fun 4 4 Negative effects... 2
effects neg: loss of freedom 6 4 Negative effects... 2
effects neg: more worries/stress/respo... 9 4 Negative effects... 2 more worries, more stress less bur
effects neg: on relationships 10 1 Negative effects... 2
effects neg: on self 6 3 Negative effects... 2 feeling inadequate losing identity s
EFFECTS POS 0 0 Positive effects... 2 statements that deal with the effec
effects pos: fulfillment 6 4 Positive effects... 2 being a parent gives a sense of full
Code
children: > happiness
Color Yellow
In Groups
Children & Happiness (attitude)
Linked Codes
effects pos: personal growth
effects pos: positive emotions
Coded Quotations
3:21 ¶ 54, I think fulfilling that basic...
3:22 ¶ 56, I'm happy with my two boy...
3:45 ¶ 87, I am lucky in that for the m...
3:47 ¶ 89, My second baby was most...
3:50 ¶ 92, The struggles of love, of a...
3:58 ¶ 106, My children are now youn...
3:62 ¶ 117, I have a son and three dau...
3:95 ¶ 170, I think it makes all the diff...
3:116 ¶ 180, I have two daughters an...
3:122 ¶ 186, Am i "happier" than bef...
Status
Created: 7 December 2011
Susanne
Changed: 19 February 2014
Susanne
Preview
3:21 ¶ 54 in 3_Parenting blog: reader comments
1 coding
children: > happiness
I think fulfilling that basic biological function is probably gratifying, if not happiness-producing per se.
3:22 ¶ 56 in 3_Parenting blog: reader comments
1 coding
children: > happiness
I'm happy with my two boys. They're definitely the light of my life.
3:45 ¶ 87 in 3_Parenting blog: reader comments
1 coding
children: > happiness
I am lucky in that for the moment I am not balancing work and motherhood, and we have yet to experience the challenge that multiple children will bring. But we will certainly do it again (if we're lucky enough to have another one). If this isn't happiness, I'm not sure what is.
3:47 ¶ 89 in 3_Parenting blog: reader comments
1 coding
children: > happiness
My second baby was mostly pleasure, and the two children as they grew up became almost
Comment
statements that express the opinion or belief that children add to happiness

Importing and Exporting a List of Codes

Exporting the List of Codes

Use this option if you want to export a list of codes for re-use in another ATLAS.ti project, or in another software. For the latter, you need to use the QDPX export option. For further information see the chapter on Universal Data Exchange

> To export all codes with comments and groups for use in another ATLAS.ti project, select **Codes** > **Export** > **Codebook (XLSX)**.

> Select a location where you find to save the file, and click **Save**.

Importing the List of Codes

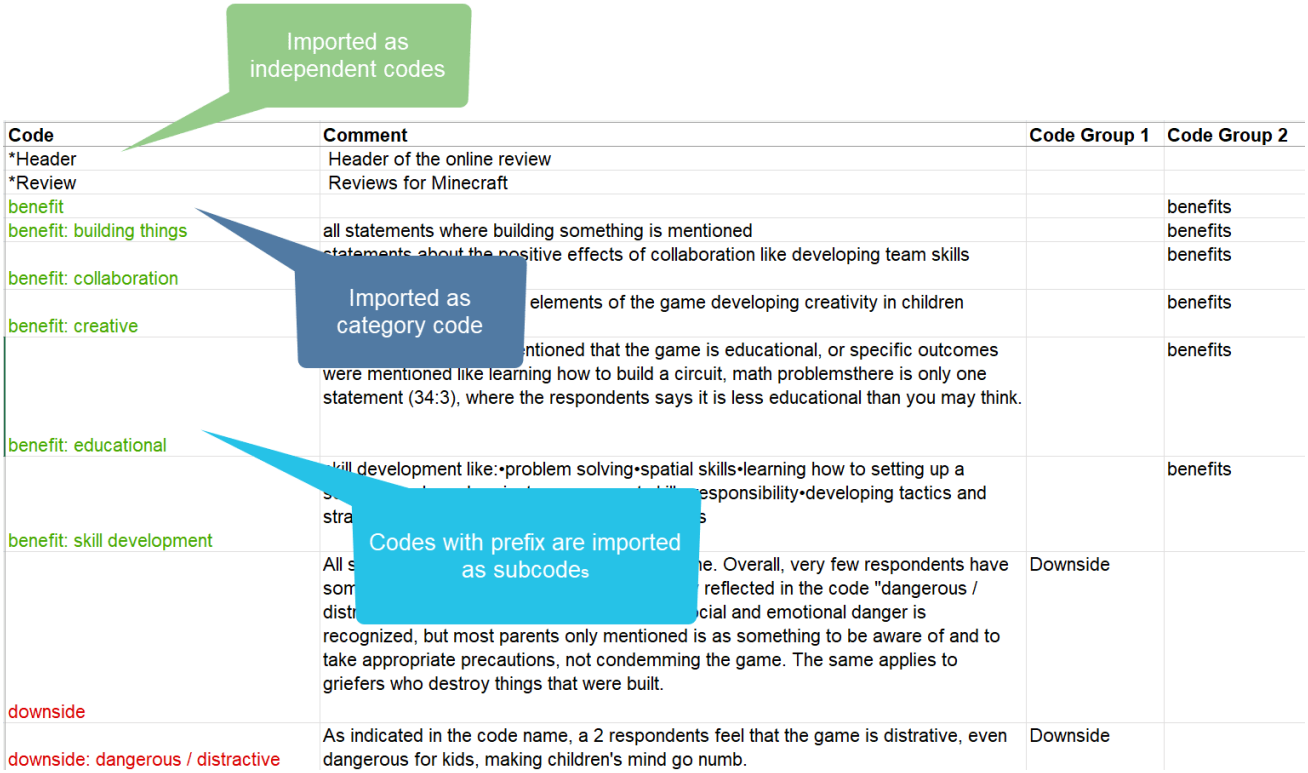
Importing an already existing code book can be useful for a number of reasons:

- To prepare a stock of predefined codes in the framework of a given theory. This is especially useful in the context of a team project when creating a Master project.
- To code in a "top-down" (or deductive) way with all necessary concepts already at hand. This complements the "bottom-up" or*inductive coding* stage in which concepts emerge from the data.

You can prepare a code book including code descriptions, code groups and colors in Excel and import the Excel file. This is how you need to prepare the Excel file:

You can enter headings like Code, Code Definition, Code Group 1, Code Group 2, but you do not have to. The headers can be in any language. The columns are interpreted in the following order, whether you add headings or not:

- column 1: code name
- column 2: code description (comment)
- column 3: code group 1
- column 4: code group 2
- all subsequent columns: further code groups



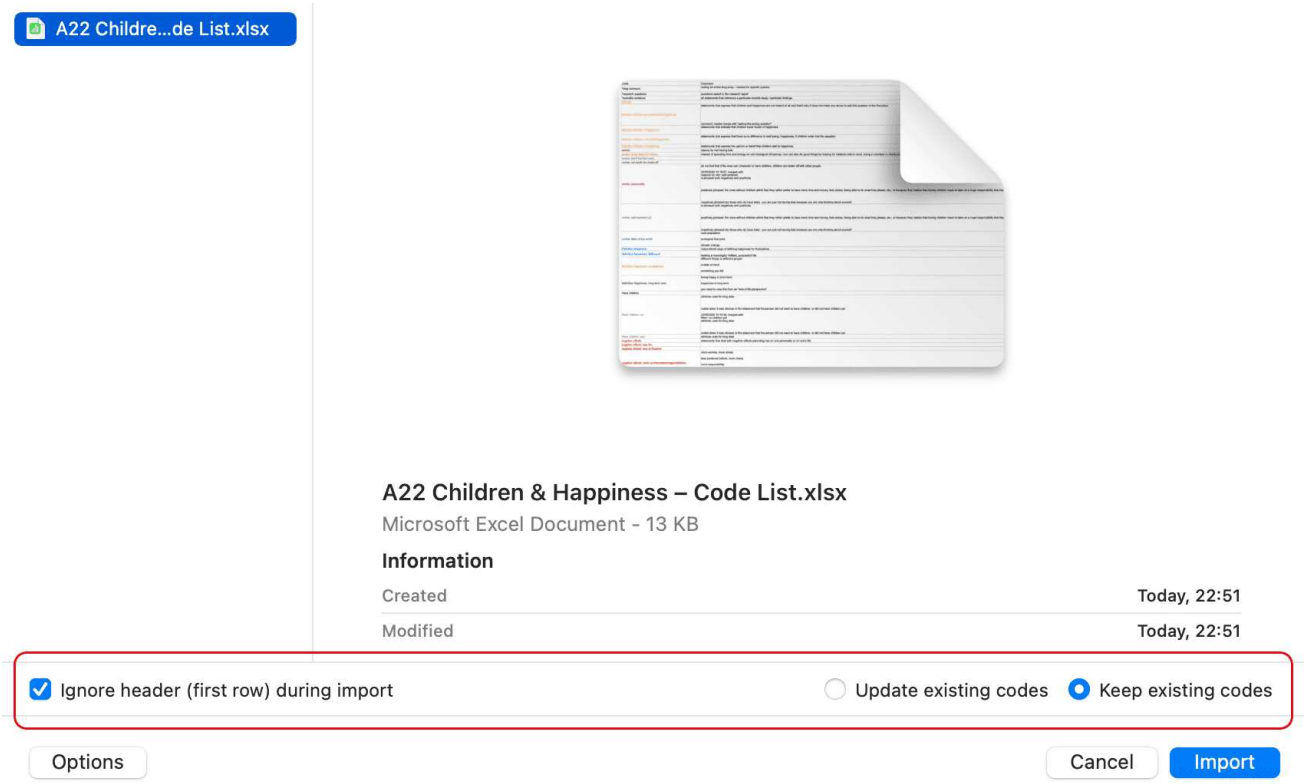
Code	Comment	Code Group 1	Code Group 2
*Header	Header of the online review		
*Review	Reviews for Minecraft		
benefit			benefits
benefit: building things	all statements where building something is mentioned		benefits
benefit: collaboration	statements about the positive effects of collaboration like developing team skills		benefits
benefit: creative	elements of the game developing creativity in children		benefits
benefit: educational	ntioned that the game is educational, or specific outcomes were mentioned like learning how to build a circuit, math problemsthere is only one statement (34:3), where the respondents says it is less educational than you may think.		benefits
benefit: skill development	kill development like:•problem solving•spatial skills•learning how to setting up a s esponsibility•developing tactics and stra s		benefits
downside	All s e. Overall, very few respondents have som reflected in the code "dangerous / distr cial and emotional danger is recognized, but most parents only mentioned is as something to be aware of and to take appropriate precautions, not condemming the game. The same applies to griefers who destroy things that were built.	Downside	
downside: dangerous / distractive	As indicated in the code name, a 2 respondents feel that the game is distrative, even dangerous for kids, making children's mind go numb.	Downside	

- All single codes are imported as independent codes.
- All codes that have the same prefix will be imported as subcodes. Based on the prefix, ATLAS.ti determines the category codes. As in the example shown here: 'benefit' will become a category code; all codes like 'benefit: creative' or 'benefit: collaboration', will become subcodes of benefit.
- If you color the code names, this color is used in ATLAS.ti as code color.

Folders cannot be imported via the Excel file. They need to be added later.

> To import the Excel file, select **Codes** > **Import** > **Codebook (XLSX)**.

> Select a file. Depending on whether you have inserted headers in the Excel file, activate or deactivate the option "Ignore headers (first row) during import". You find this option at the bottom left in the file picker.



If your project already has codes, you need to decide what ATLAS.ti should do if the list of codes in the Excel table contains codes that are already in your project. You can update the attributes of the existing codes, i.e., code color and comment, so they match the information that is in the Excel sheet. If so, select **Update existing codes**. If you do not want to change existing codes, select **Keep existing codes**.

> Make your choices and click **Import**.

Building a Code System

A well-structured code list is important for further analysis, where you look for relationships and patterns in the data, with the goal of integrating all results to tell a coherent story. If, as in a survey, you only have questions with the answer categories "yes" and "no" in your questionnaire, your data will only consist of nominal variables. This means that the analysis is limited and does not go beyond the descriptive level. This is comparable to a codebook that consists of a set of codes whose analysis level remains indefinite. The aim of building a code system is that you can access your data through the codes and that you can make full use of the analysis tools.

At the end of the chapter you will find a list of articles and books based on which the following recommendations were written.

How to Begin Building a Code System

Unless you are working with theoretically derived a priori codes, to start with, you will be creating codes to catch ideas as they happen. The list of code grows, and it becomes more and more difficult to keep an overview. It is time to begin managing your list of codes. This can be after coding one document, one interview or a few. Managing your code means to start sorting and ordering them into folders, categories and subcodes. Code groups can help in this process as well. Via code groups you can collect codes that are connected. Then set the code group as filter so that you can focus on this smaller subset of codes. Which codes might form a category, which ones need to be merged or split?

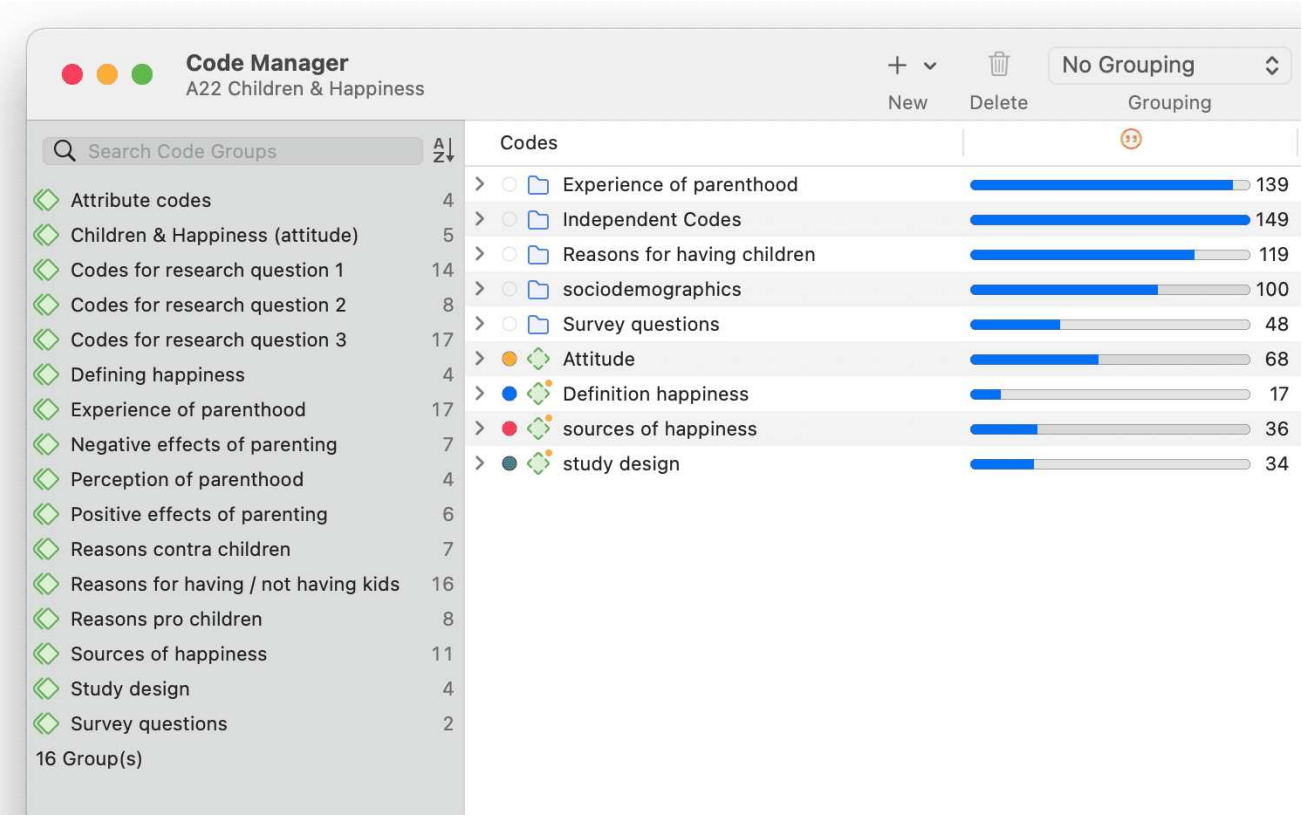
Applying a hierarchically organised catalogue to your code system has several benefits. See also Bazely (2013:179-183).

- It creates order: you know where to look to place or find a particular code
- It brings conceptual clarity for yourself and others
- It provides a prompt to code additional aspects as you continue to code. You are for instance reminded to code for 'reasons for having children', 'sources of happiness', 'definition of happiness', etc. because you have a category for these types of things. It also sensitizes you to notice other subcodes that appear in the data.
- it will assist you in identifying patterns of relationships in your data. Not only will you be able to ask questions about a particular category, this will also allow you to explore relationships between categories, e.g., between emotions and events. You can for instance explorer whether particular events regularly bring forth particular emotions. This can best be achieved if the kinds of things whose associations you want to explore are coded to different categories, in this case a category 'Emotion' with the various types of emotions as subcodes, and a category 'Event' with the various events as subcodes. Hence, you only need a 2-level hierarchy consisting of categories and subcodes.

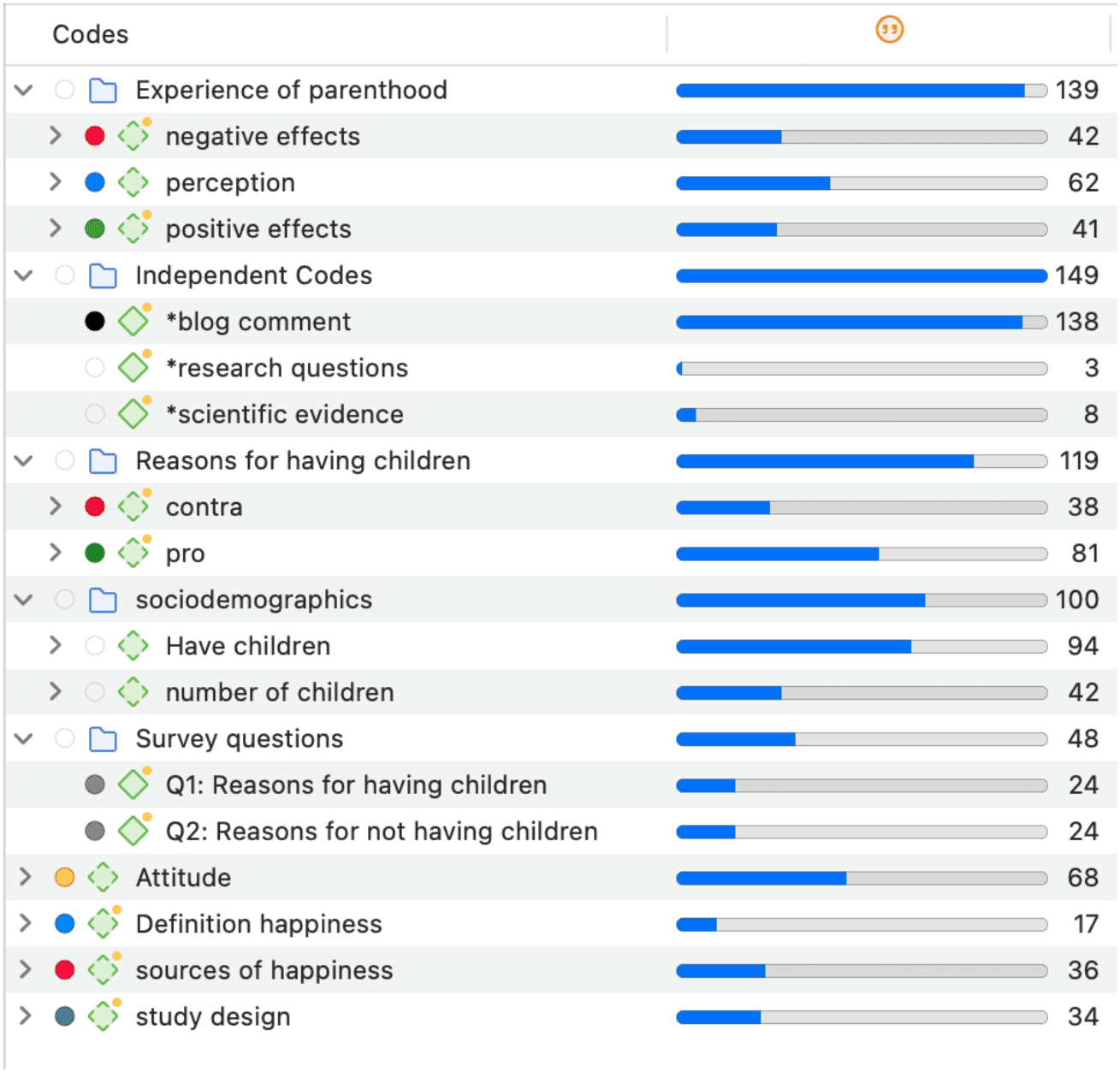
Several authors provide suggestions in what kind of ways codes in a code system might be grouped. Lofland (1971) for example suggested acts, activities, meanings, participation, relationships, and settings. Bogdan and Biklen (1992) proposed setting/context, definition of the situation, perspectives, understandings of people and objects, process, activities, events, strategies, relationships and social structure. Bazeley (2013) added people/actors/players, issues, i.e., matters raised about which there may be some debate, attitudes, beliefs, ideological positions, frameworks, cultural context, emotional responses or states, personal characteristics, impact/ outcomes (facilitator or barriers).

You may find that some of these ideas easily translate into a category with subcodes; others might be too abstract to code with them. Instead, they can be used at the folder level. Within the folder you can develop categories with subcodes which can be applied to code the data.

Below we show you an example. In the first screenshot, you only see the folder and category level. Code groups have been created as means to filter on folder and category level for different purposes. See Further Data Analysis

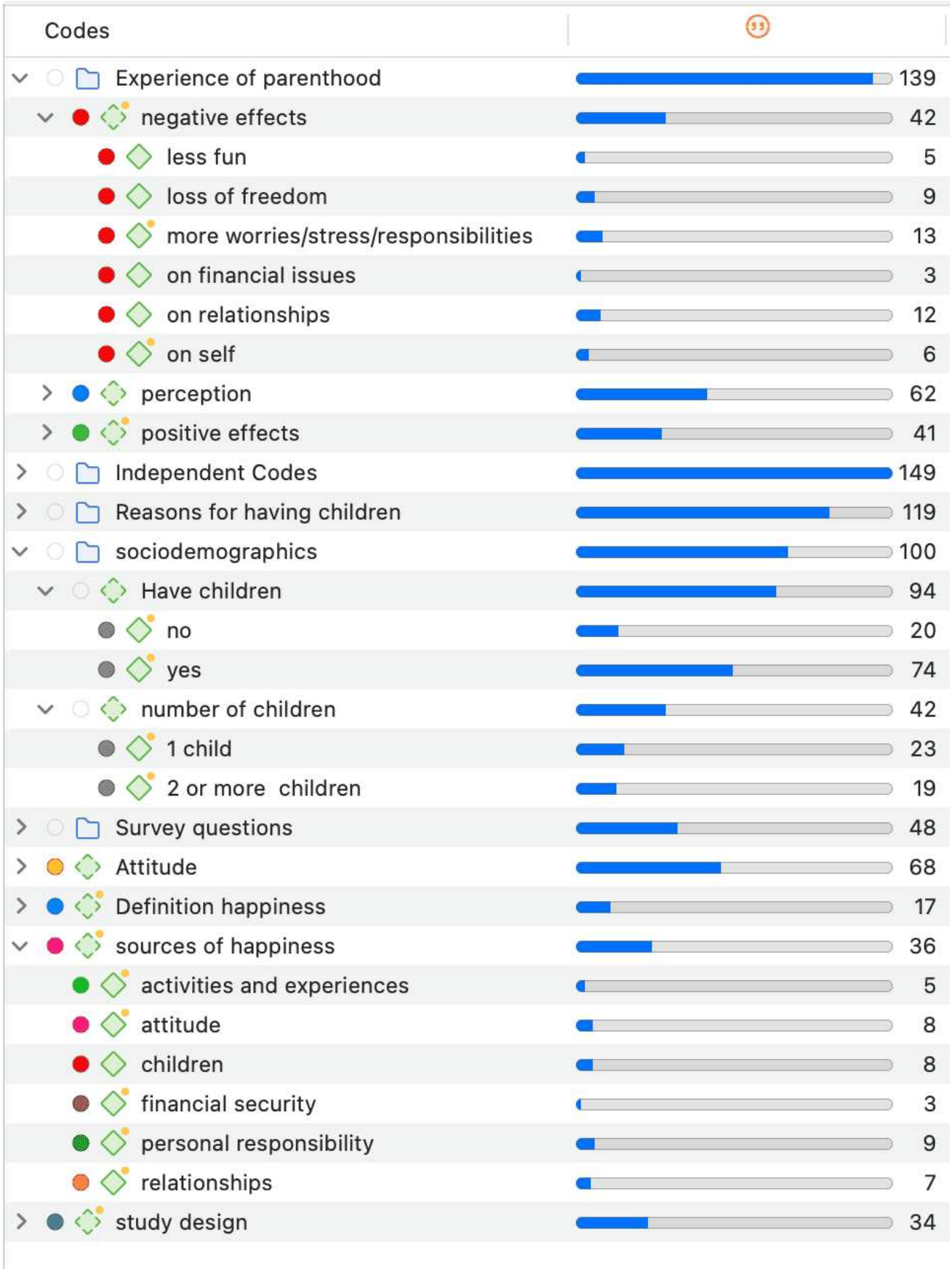


In the second screenshot, the folders have been expanded, and you see the type of categories which were sorted into the various folders.



If you have interview transcripts and want to "code" for respondent attributes like gender, age, family status and the like, you need to use document groups. You only code for sociodemographic characteristics if there are multiple respondents in one document as for instance is the case with focus group data.

In the third screenshot, some categories have been expanded, and you see the subcodes. In previous versions of ATLAS.ti it was useful to use the same colour for all codes of a category. Given the new visualizations tools, e.g., in the Document and Code Manager, it can be useful to give each subcode a different color as shown for the category 'sources of happiness'.


Codes
Experience of parenthood 139
negative effects 42
less fun 5
loss of freedom 9
more worries/stress/responsibilities 13
on financial issues 3
on relationships 12
on self 6
perception 62
positive effects 41
Independent Codes 149
Reasons for having children 119
sociodemographics 100
Have children 94
no 20
yes 74
number of children 42
1 child 23
2 or more children 19
Survey questions 48
Attitude 68
Definition happiness 17
sources of happiness 36
activities and experiences 5
attitude 8
children 8
financial security 3
personal responsibility 9
relationships 7
study design 34

Characteristics of a well-structured code list

- Each code is distinct, its meaning is different from the meaning of any other code.
- The meaning of each code is described in the code comment.
- Each category can be clearly distinguished from other categories.
- All subcodes that belong to a category are similar as they represent the same kind of thing. Nonetheless, each sub code within a category is distinct.
- Each code appears only once in the code system.
- The code system is a-theoretical. This means the code system itself does not represent a model nor a theory. The codes merely describe the data, so that the data can easily be accessed through them.
- The code system should be logical, so you can find what you are looking for.
- The code system contains between 10 and 25 top-level categories.
- The code system is no more than two to three levels deep. Thus, it consists of folders, categories and their subcodes. If there are layers of meaning in a section of your data, it is better to create separate codes and double-code the data. This way you can later associate those layers of meaning, e.g., by using the Code Co-occurrence Table.

Good Practice Tips

Organize your code structure based on conceptual similarities, not observed or theoretical associations, nor according to how you think your will want to write the result chapters.

Use a separate code for each element of what the text is about, i.e., each code should encompass one concept only. If there are multiple aspects, the passage can be coded with multiple codes.

Don't worry if not all of your codes can be sorted into a category. Some codes will remain single codes. In order not to "loose" them collect them in a folder, so they show up in their own section in the code system.

The Role of Code Groups in Building a Code System

If you have a lot of low frequency codes that you want or need to merge, then code groups are a good way to collect them. After you have added all low level codes that belong to the same theme / topic / idea, you can set this code group as filter. This makes it easier to merge the codes. The next most likely step is to create a category and add the merged codes as subcodes. You may want to keep the code group because it will come in handy later in the analysis as filter.

Moving on

Once the data is coded, you have a good overview of your material and can describe it. You can then take the analysis a step further by querying the data. The tools that can be used include the code co-occurrence table, the code document table, the query tool, and the networks.

The goal is to delve deeper into the data and find relationships and patterns. Writing memos is very important at this stage as much of the analysis does not just happen because you apply a tool. The insights come when reading the data resulting from a query, and when writing summaries and interpretations.

Literature

The recommendations in this section are based on the following authors:

Bazeley, Pat (2013). *Qualitative Data Analysis: Practical Strategies*. London: Sage.

Bernard, Russel H. and Ryan, Gery W. (2010). *Analysing Qualitative Data: Systematic Approaches*. London: SAGE Publications.

Bodgan, R., and Biklen, S.K. (1992). *Qualitative Research for education: An introduction to theory and methods (2nd ed.)*. Boston: Allyn & Bacon.

Charmaz, Kathy (2006/2014). *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*. London: SAGE Publications.

Corbin, Juliet and Strauss, Anselm (2008/2015, 3rd and 4th ed.). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks, CA: SAGE Publications.

Freeman, Melissa (2017). *Modes of Thinking for Qualitative Data Analysis*. NY: Routledge.

Friese, Susanne (2019). *Qualitative Data Analysis with ATLAS.ti*. London: Sage.

Gibbs, G. (2008). *Analysing Qualitative Data*. London: SAGE.

Guest, G., MacQueen, K.M., and Namey, E.E. (2012). *Applied Thematic Analysis*. Los Angeles: SAGE Publications.

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Hammersley M., and Atkinson P. (2007) *Ethnography: Principles in Practice*. Third edition. London: Routledge.

Johnston, L. (2006). Software and method: Reflections on teaching and using QSR NVivo in doctoral research. *International Journal of Social Research Methodology*, 9(5), 379–391.

Lofland, J. (1971). Analyzing social settings: A guide to qualitative observation and analysis. CA: Wadsworth.

Miles, Matthew B., Huberman, M., and Saldaña, J. (2014, 3rd ed.). *Qualitative Data Analysis*. Thousand Oaks, CA: SAGE Publications.

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Richards, L. (2021, 4ed). *Handling qualitative data: A practical guide*. London: SAGE Publications.

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Spradley, James P. (2016). *The Ethnographic Interview*. Waveland Press.

Strauss, A. (1987). *Qualitative analysis for social scientists*. Cambridge, UK: Cambridge University Press.

Weston, C., Gandell, T., Beauchamp, J., Beauchamp, C., McApline, L., and Wiseman, C. (2001). Analyzing Interview Data: The Development and Evolution of a Coding System, *Qualitative Sociology,* 24(3): 381-400.

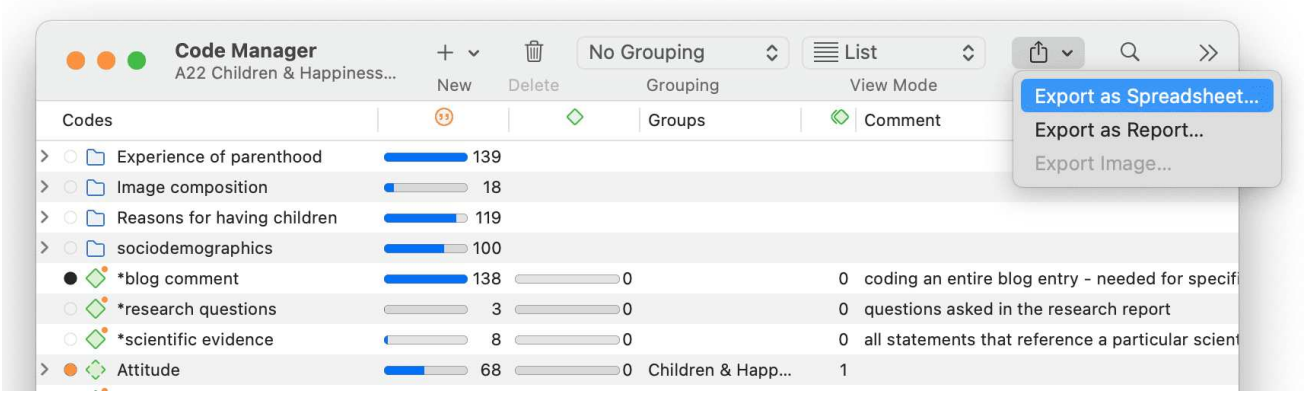
Creating a Codebook

If you want to create a codebook for the appendix of a report, do not use the **Export Codebook** option that you find under the main Code menu. The purpose of this option is to transfer codebooks between projects or computers.

The recommended option to create a code book is to use the Excel export option from the Code Manager:

> Open the Code Manager. Click on the Export button and select **Export as Spreadsheet.**

ATLAS.ti exports all columns that are visible in the Code Manager. If you click on a column header in the Code Manager, you can deselect columns that you do not want to export.



Example Outcome:

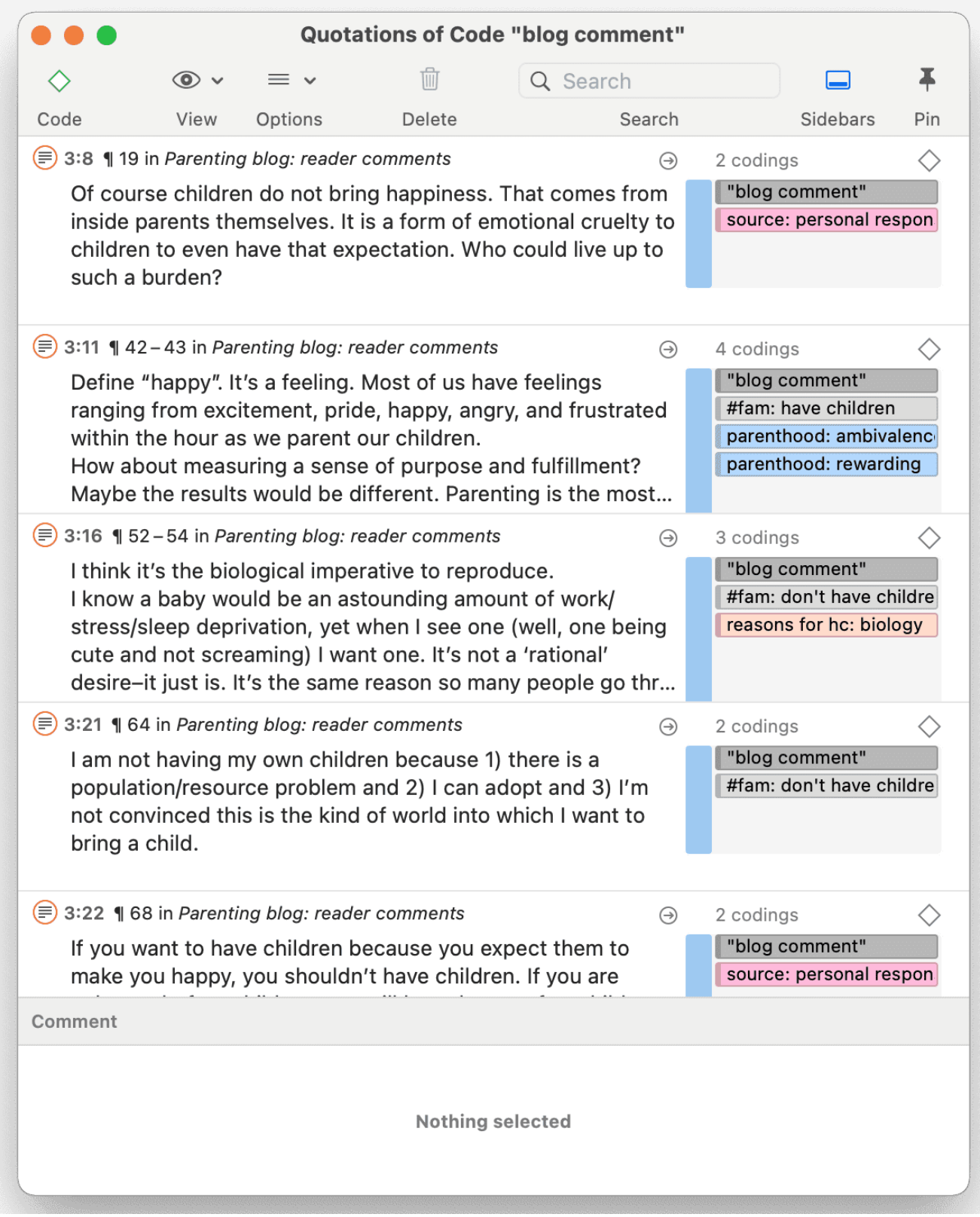
Folders and independent codes are listed in the first column, categories in the second column, and subcodes in the third column.

Code	Comment	Grounded	Code Groups
○ Experience of parenthood		139	
• positive effects	statements that deal with the effects parenting has on one personally or on one's life	41	Positive effects of parenting RQ 2
• positive emotions	general positive effects like:experiencing childhood againcloser contact to other peoplewides world viewbeing loved and adoredlove partner in a different way (as father)feel alive	15	Positive effects of parenting RQ 2
• fullfillment	being a parent gives a sense of fullfillment / ones feesl more fullfilled as a person	6	Positive effects of parenting RQ 2
• life is richer	life is richer, purposeful, meaningful	6	Positive effects of parenting RQ 2
• personal growth	being a parent force one to grow upmakes one reflect on life, brought out good things, helped to understand oneself better	10	Positive effects of parenting RQ 2
• improved relationships	being a parent oneself helped improve the relationships with one's own parentsone sees the partner in a new life and falls in love all other again	7	Positive effects of parenting RQ 2

Quotation Reader

Video Tutorial: The Quotation Reader

The Quotation Reader allows you to conveniently read quotations coded by a selected code or as a result of a query. You can modify existing codes, which means add or remove codes. Elsewhere, this has been referred to as **coding on**.

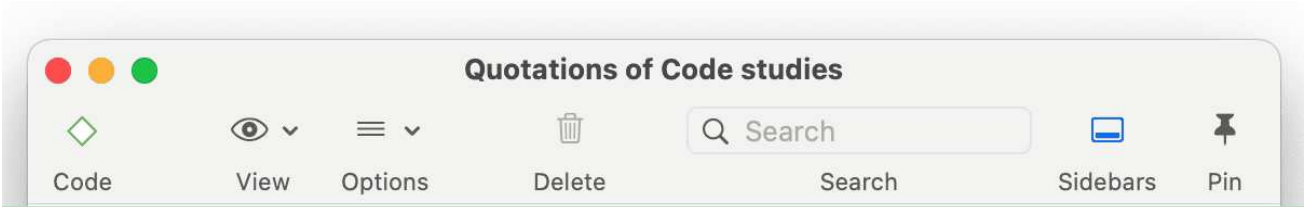


In the Quotation Reader, you can:

- change between single line, small and large preview
- add or modify the quotation name
- write a comment for a quotation
- apply new or existing codes
- remove applied codes
- view a quotation in the context of the original document

- delete a quotation

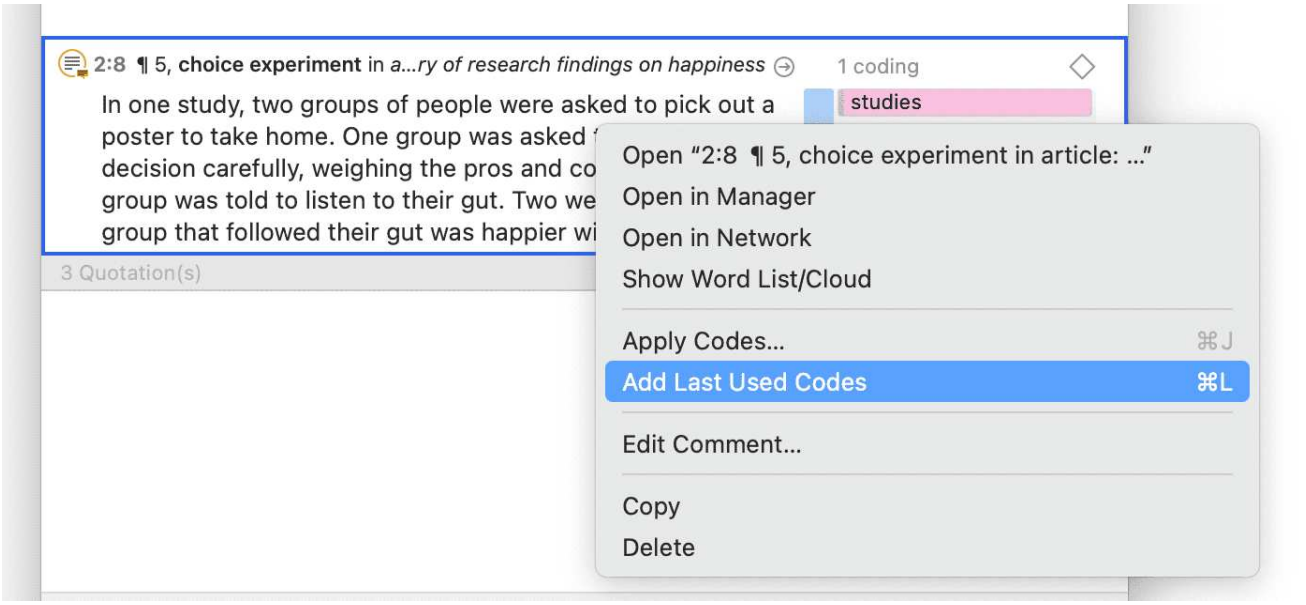
Toolbar



Code

> To change the coding for a quotation, click on the **Code** button in the toolbar, or right-click and select **Apply Codes**, or use the short-cut:cmd+J. This opens the coding dialogue, and you can use all options that are explained in the section Coding Date.

> You can also code with the last-used code. Right-click on a quotation and select **Add Last Used Codes**. Or: Select multiple quotations, right-click and then select the Last Used Codes option.



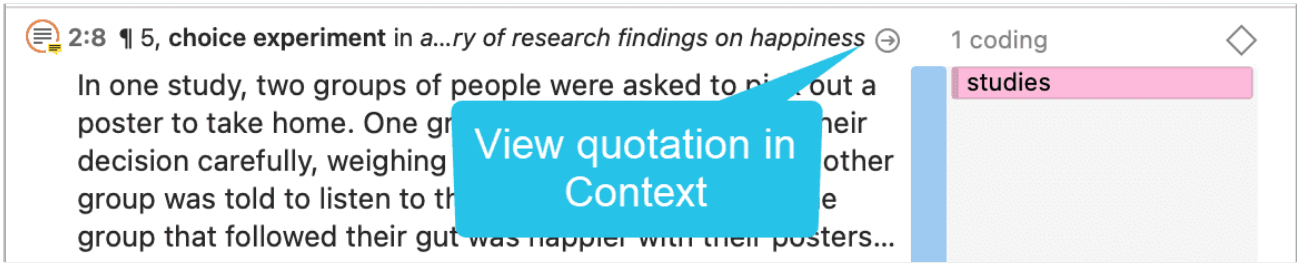
You can also select multiple quotations or all quotations and code all selected quotations with a new or an existing code.You can also code with the last used code: Right-click on a quotation and select **Add Last Used Codes**. Or: Select multiple quotations, right-click and then select the Last Used Codes option.

You can also select multiple quotations or all quotations and code all selected quotations with a new or an existing code.

View

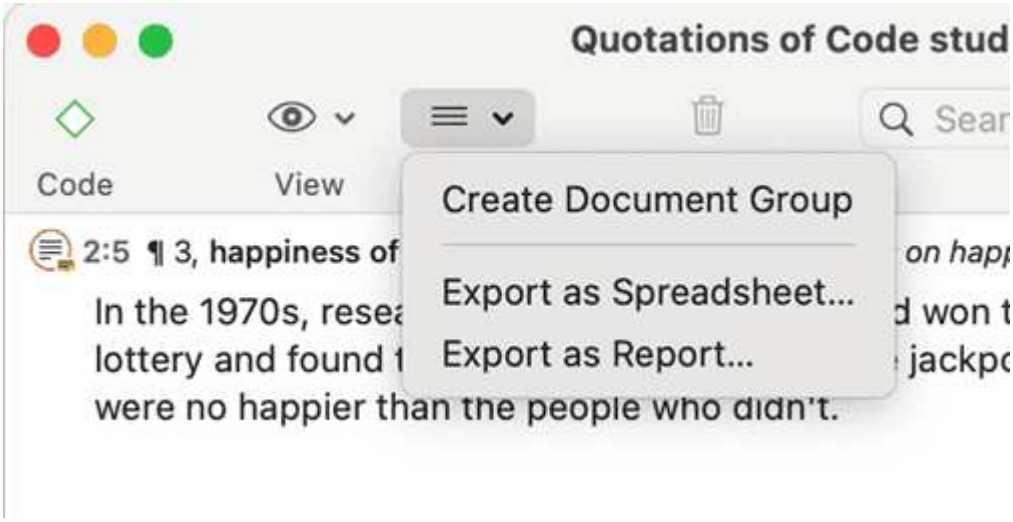
Depending on the length of your quotations you can adjust the view to single line, small or large preview. If you have very short quotations, the single line view might be all what you need to see. It is also useful if you have created your own name for quotations, e.g. to paraphrase textual data or wrote titles for multimedia quotations.

View in Context



> If you want to see a quotation in the context of the original document, either click on the right arrow, or double-click.

Options



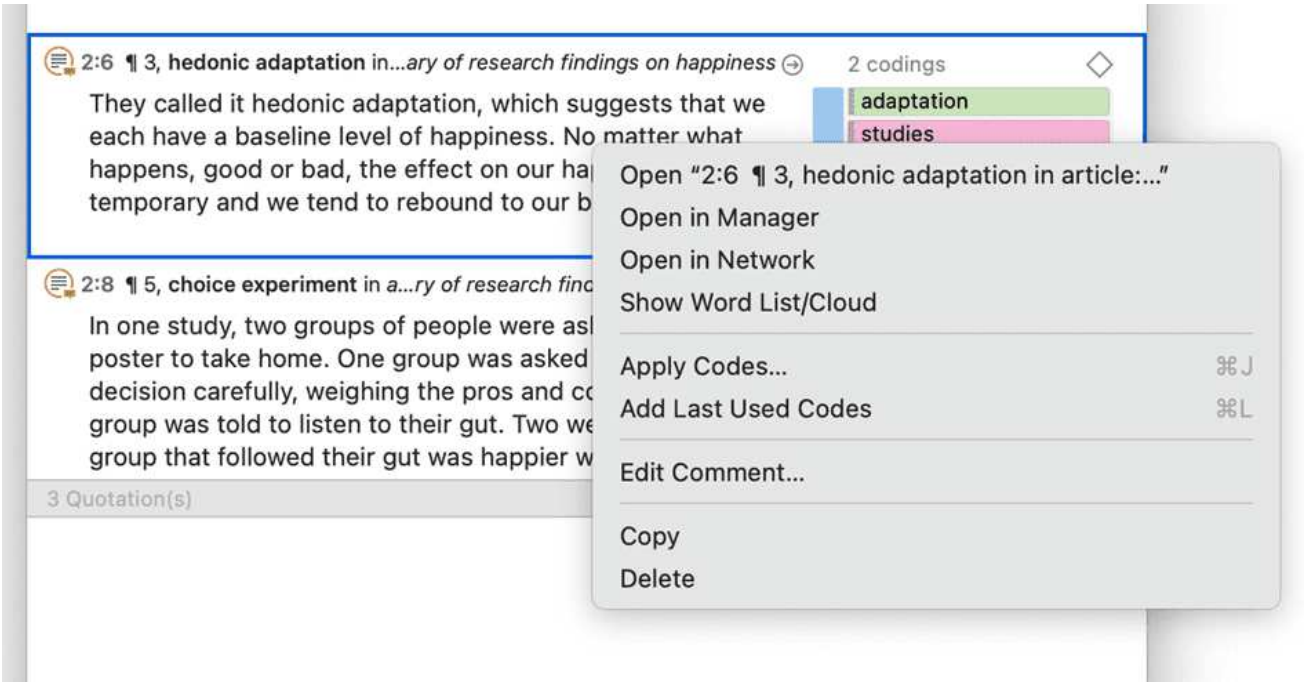
Create Document Group: You can create a new document group containing all documents that the quotations in the Quotation Reader are a part of. Let's assume you have coded for years of professional experience. This was something that came up in the interview, and you did not know beforehand. If you want to compare statements of people with different lengths of working

experience, this is a convenient way to turn a code into a document group, and in this case a variable for comparison. See Working with Groups.

Export as Spreadsheet: You can export all quotations to an Excel spreadsheet.

Export as Report: You can create a text report containing all quotations and further information that you are interested in. You find more information on how to create text reports here.

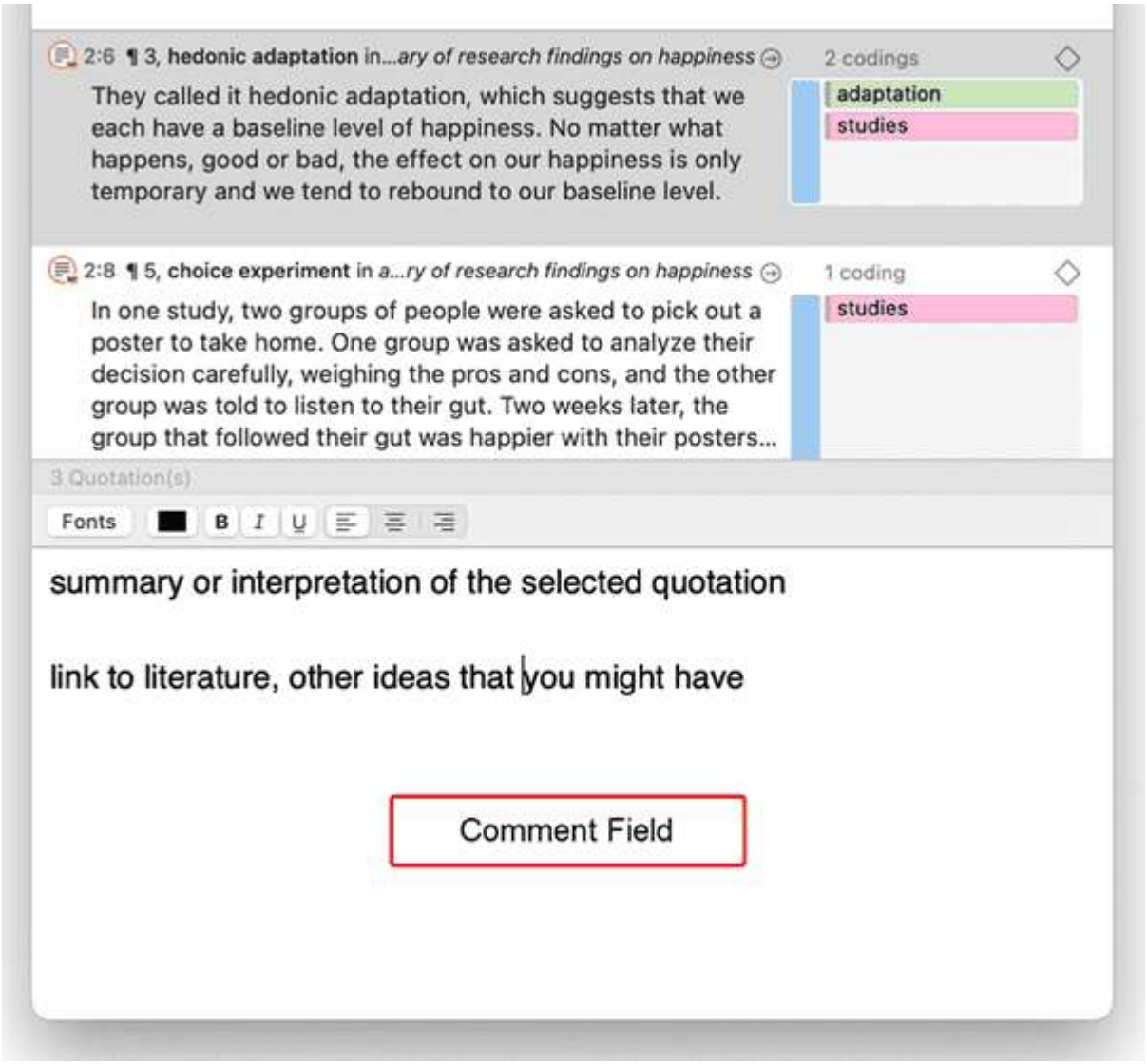
Context Menu Options



Open Network: If you want to see all links of a quotation, select one or multiple quotations, right-click and select Open in Network. See Working with Networks.

Show Word List/Cloud: Another context menu option is to show a word list or word cloud for selected items. See Working with Word Lists and Word Clouds.

Writing a comment: If you want to write a comment for a quotation, select it, right-click and select Edit Comment from the context menu. Or, select it and write a comment into the comment field that you find at the bottom of the Quotation Reader.


2:6 ¶ 3, hedonic adaptation in...ary of research findings on happiness
2 codings
They called it hedonic adaptation, which suggests that we each have a baseline level of happiness. No matter what happens, good or bad, the effect on our happiness is only temporary and we tend to rebound to our baseline level.
adaptation
studies
2:8 ¶ 5, choice experiment in a...ry of research findings on happiness
1 coding
In one study, two groups of people were asked to pick out a poster to take home. One group was asked to analyze their decision carefully, weighing the pros and cons, and the other group was told to listen to their gut. Two weeks later, the group that followed their gut was happier with their posters...
studies
3 Quotation(s)
Fonts
summary or interpretation of the selected quotation
link to literature, other ideas that you might have
Comment Field

Exploring Text Data

Video Tutorial: Working with Word Lists and Working with Word Clouds A quick way to get a feeling for the content of text documents is by creating a word cloud or word list.

Word lists offer word "crunching" capabilities for a simple quantitative content analysis. This feature creates a list of word frequency counts, and some additional metrics like word length, and percentage of occurrence within or across all selected entities. Word lists can be exported to Excel.

Word clouds are a method for visually presenting text data. They are popular for text analysis because they make it easy to spot word frequencies. The more frequent the work is used, the larger and bolder it is displayed. Word clouds can be exported as image.

Word clouds and word lists can be created for:

- documents and document groups
- quotations
- content of quotations by code and code group

A stop and go list including a list of 'ignorable' characters can be used to control the analysis. Words can also be temporarily removed from a list or cloud without the need to add them to a stop list.

For information see Creating Word Lists and Clouds.

Stop and Go Lists

Words in **stop lists** are words which are filtered out when processing text. *Stop words* are short function words that occur very often and which do not convey any particular meaning. Examples are 'the', 'a', 'you', 'is', 'at', 'on' and 'which'. ATLAS.ti offers predefined stop lists in 35 languages. These stop lists are based on the information provided by Ranks NL.

In contrast, if you set a word list as **Go List**, then only the words that are in the list are counted.

Adding Words to a Stop List

> The first step is to select a stop list: Select the option **Exclude words from stop list** and select a list from the drop-down menu. If you need a stop list in a different language than English, French, German or Spanish, click on **Manage Lists** and create a new stop list (see below for further information).

> Right-click on a word in the word list or word cloud and select **Add to stop list.**

Removing Words from a Go List

> Select a Go List. If you have no *Go List* yet, you need to create one first (see below for further information).

> Right-click on a word in a word list or word cloud, and select **Remove from Go List.**

Creating a New Stop or Go List

> Click on **Manage Lists**.

> In the next window, select **Add List.**

> Enter a **name** for the list and select as list type: **Stop List** or **Go List**. Enter an optional comment to describe the purpose of the list.

> To add words to the newly created list, click on the **Add Words** a few times. Every time you click, a new field is added where you can enter a word.

RegEx: You can enter regular expressions, if you want to enter specific terms to the list. If so, you need to tick the Regex box. Optionally you can write a comment that explains the regular expression.

Options in the Stop and Go List Manager

Importing a List: Use this option if you have previously exported a list from another project, or received a list from another user. See below for further information on how to prepare your own list in Excel.

Removing a List: If you no longer need a list, you can remove it from the project.

Duplicating a List: Being able to duplicate a list can be useful, if you want to create different versions for different purposes.

Exporting a List: Exporting a stop or go list allows you to share it with other users, or to use it in another project.

Creating a User-Defined Stop or Go List in Excel

Importing a user defined list works as follows:

1. Export an existing list and open it in Excel. It serves as a template.
2. In Excel, change the name of the list, but leave all the header information as is.
3. Now delete all words and replace them with new words, one word per row.
4. Save the list under a new name and import it.

You can turn a stop list into a go list (or vice versa) by changing the *List Type*.

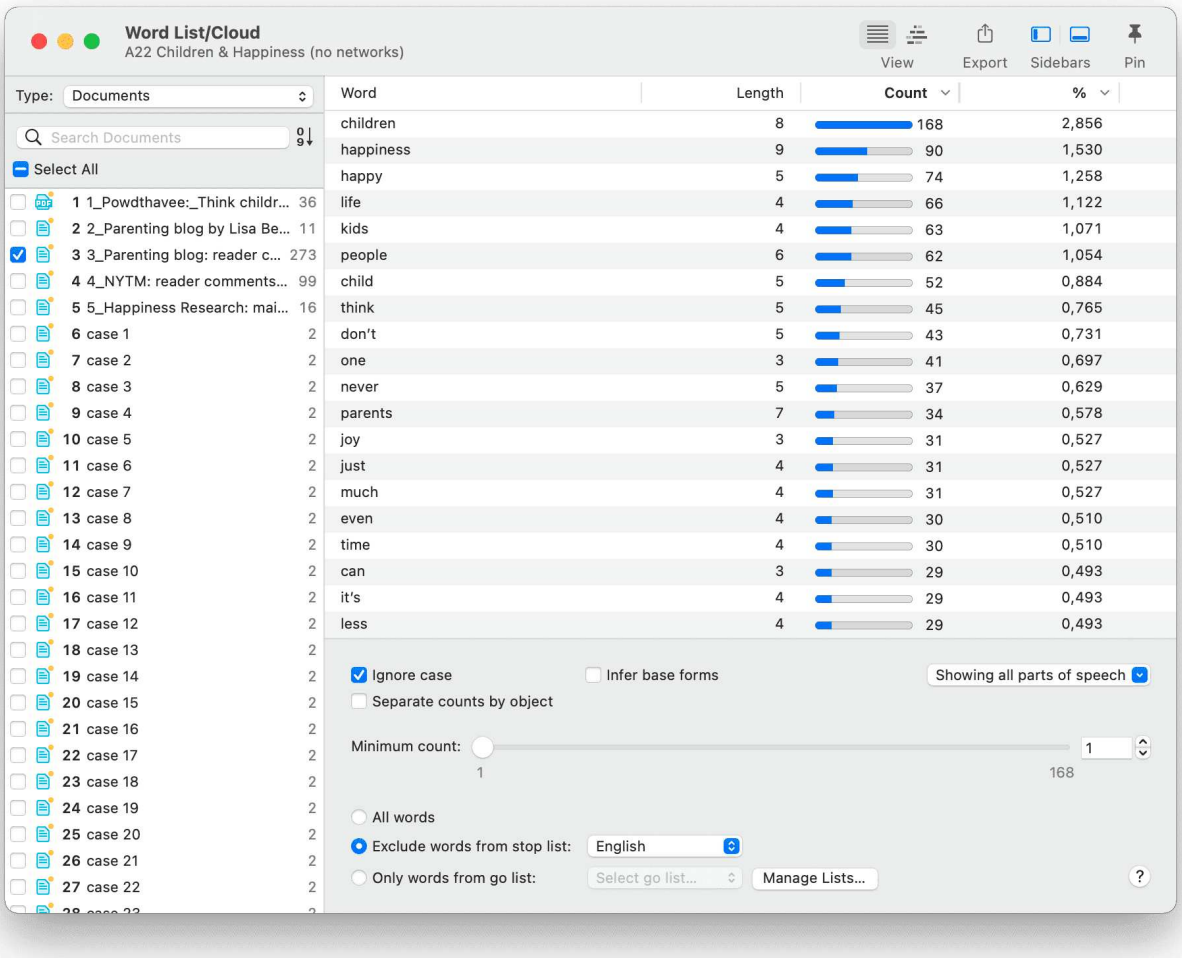
Creating Word Lists and Clouds

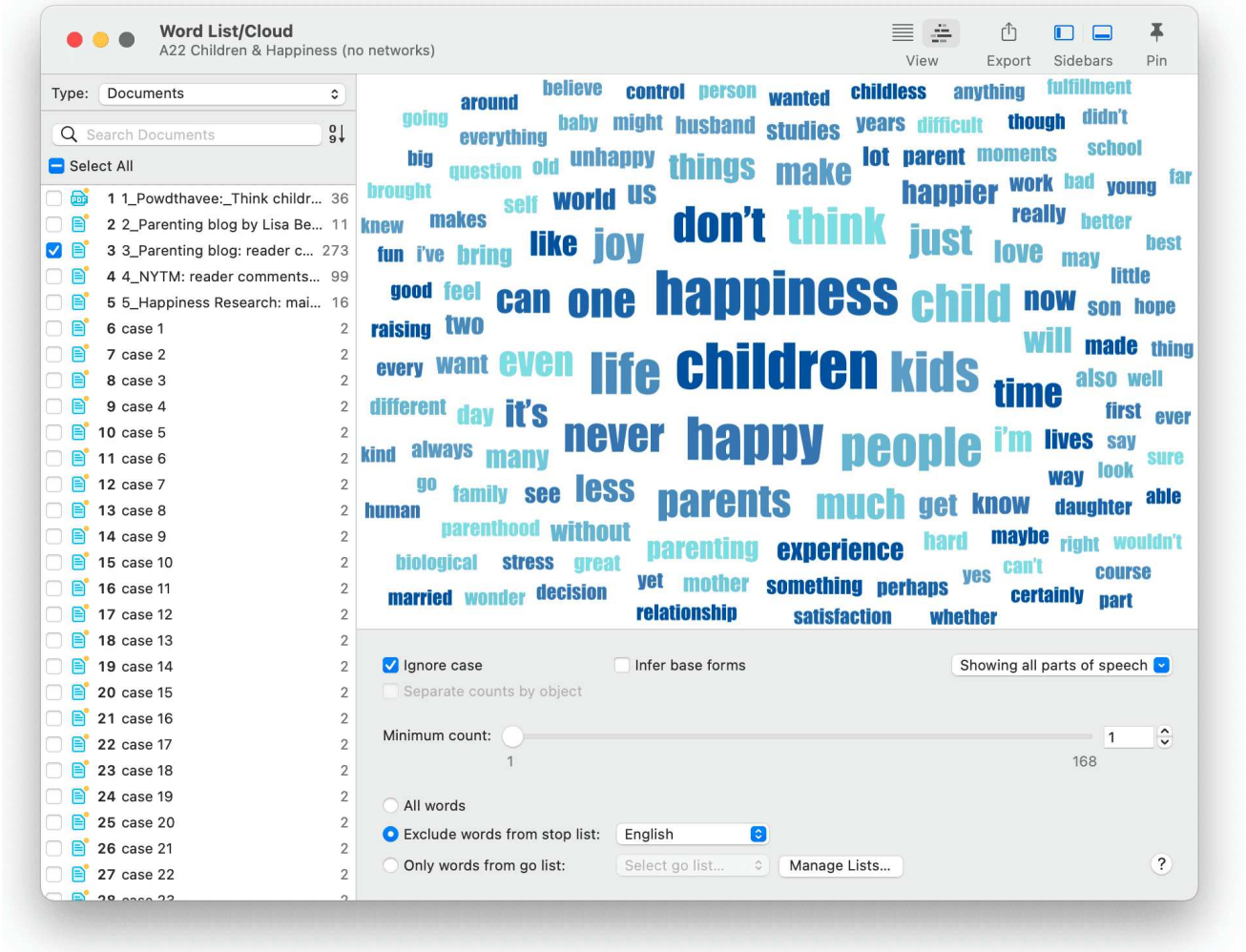
Video Tutorial: Working with Word Lists and Working with Word Clouds

> To create a word list or cloud, select **Analysis** > **Word List/Cloud** from the main menu.

> Select the entity type: Documents, Quotations, Codes, Document Groups or Code Groups, and from the list the entities for which you want to create a word list or cloud. You can also enter a search term into the **search field** to look for a specific document, code, or quotations that only contain specific words.

On the top right-hand side in the toolbar you find the buttons to switch between list and cloud view.





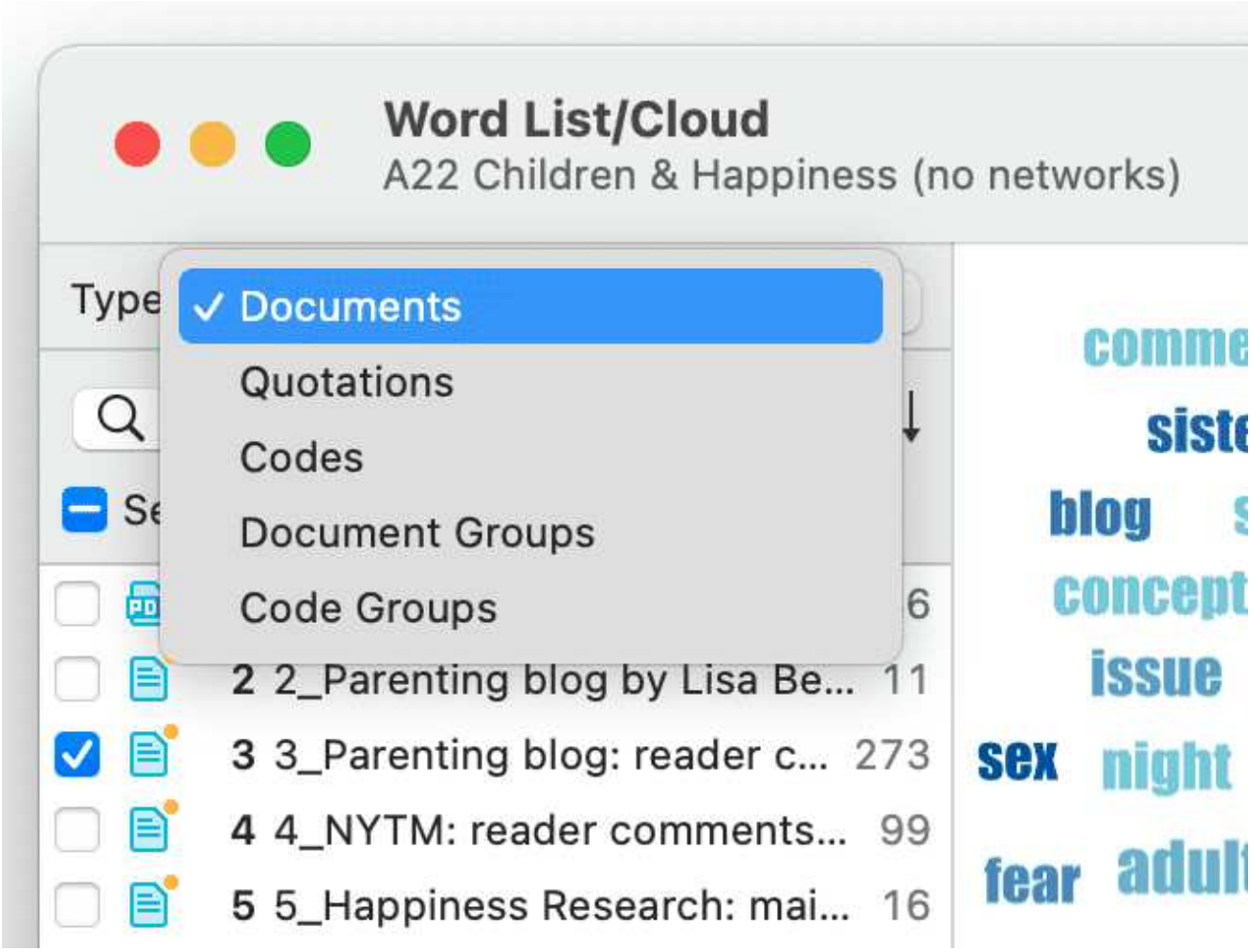
If you want your list of codes to be displayed in form of a cloud, you need to switch from List View to **Code Cloud** view in the Code Manager. See Coding Data.

Setting the Scope

Once you created a word list, you see a side panel on the left. The check-boxes of the currently active entities are checked. You can check further entities or uncheck already activated entities.

You can also change the entity type. Options are to change between:

- Documents
- Quotations
- Codes
- Document groups
- Code groups



Another scope option is to enter a search term into the **search field** to look for a specific document, code, or quotations that only contain specific words.

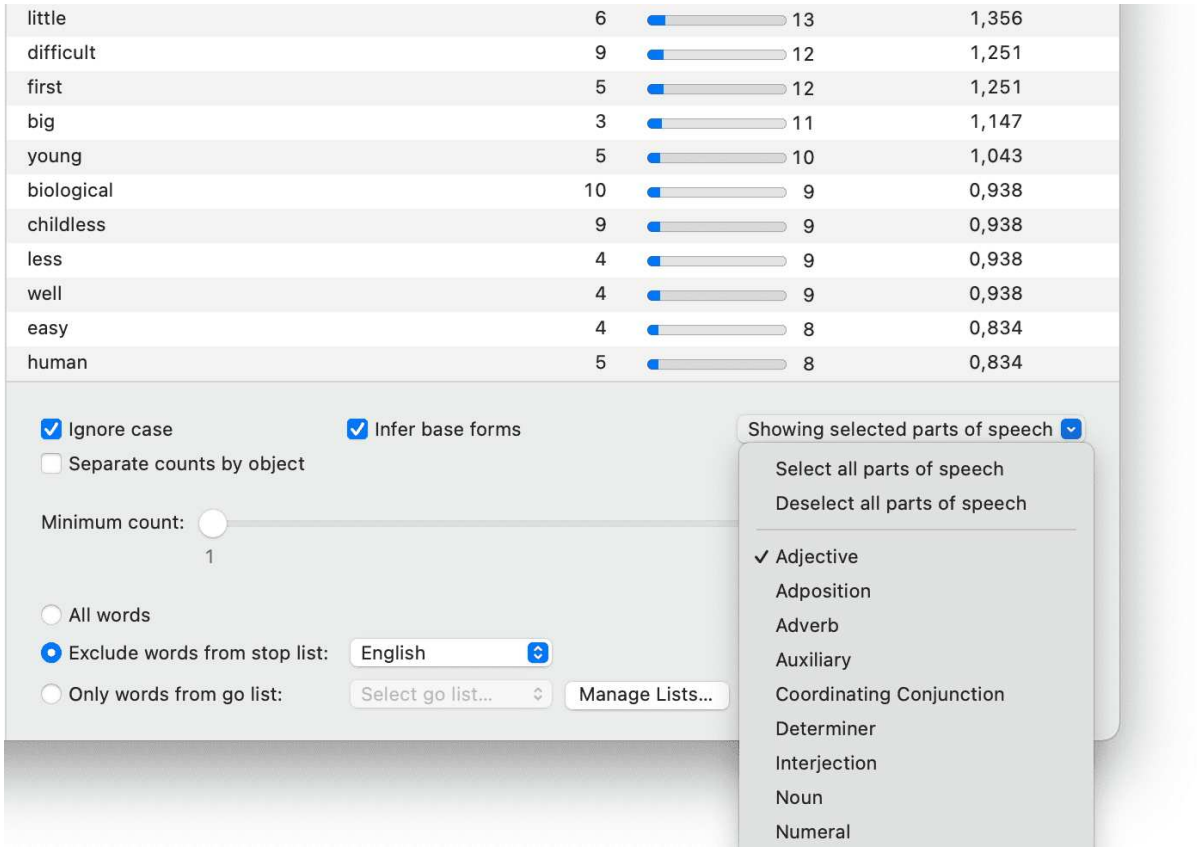
Options

Ignore case: Select this option, if you do not want to count words separately depending on whether they contain upper or lower case letters.

Infer base forms: The plural forms of nouns, the past tense, past participle, and present participle forms of verbs, and the comparative and superlative forms of adjectives and adverbs are known as inflected forms. If you activate this options, the word cloud only shows the basic form of the word, e.g., building but not buildings.

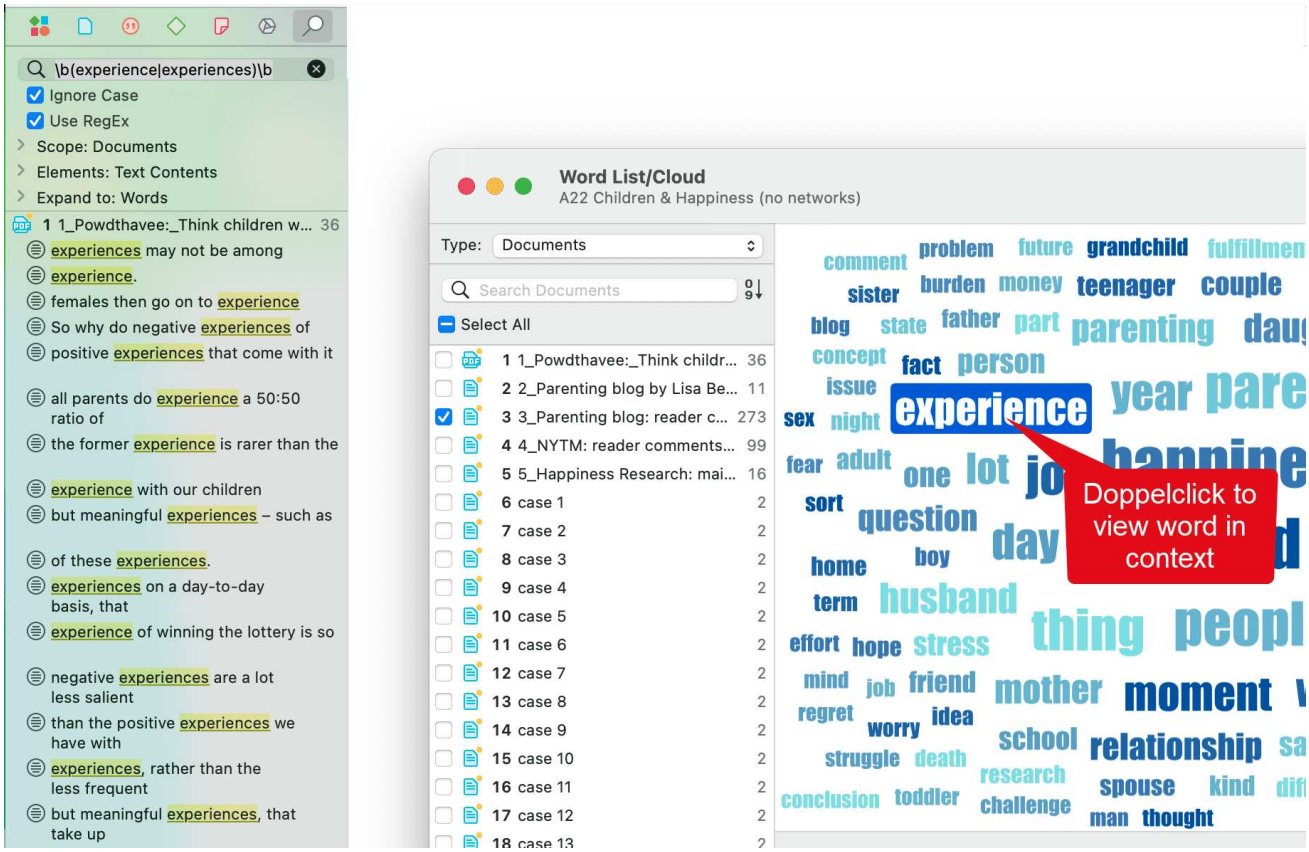
Separate counts by object: The word list provides the total count and percentage across all selected objects. Select this option if you also want a count for each selected object.

Parts of Speech: This options allows you to filter your data by specific grammatical elements (parts of speech) like adjectives, nouns, numerals, pronouns, etc. Below you see an example that only shows adjectives:



Find a Word in Context

> Double-click on a word in the word cloud or word list to find all sections where the word occurs in the context of the data.



Context Menu Options

When you right-click on a word, you have the following options:

- Copy
- Add to Stop List
- Remove from Go List
- Search (in context)

The **Copy** option is useful, if you want to run the auto coding tool based on some words in the word cloud. See Text Search.

The **Search** option opens the Project Search and shows the selected word in its context.

Export the Word List to Excel

> Click on the export icon in the toolbar. Enter a file name and select a location where you want to store the file. You can also choose to open the file immediately in Excel. Click **Save**.

Save the Word Cloud as Image

> Word clouds can be saved as image file in png format. Enter a file name and select a location where you want to store it. Click **Save**.

Automatically Code Data

With the recent advances in deep learning, the ability of algorithms to analyse text has improved considerably. Creative use of advanced artificial intelligence techniques can be an effective tool for doing in-depth research.

Under the **Code** and **Analysis** menu, ATLAS.ti offers five ways of searching for relevant information in your data that can then be automatically coded.

- AI Coding
- Find Concepts and Auto-code
- Text search
- Expert search with regular expressions
- Named Entity Recognition (NER)
- Sentiment Analysis

If you enter a term for a text search, you can select similar words from a list of synonyms. Synonyms are available in English, German, Spanish, Portuguese, French, Dutch, Russian and Simplified Chinese.

Language models for the above-listed languages are also available for Named Entity Recognition, Sentiment Analysis, and Concept Search.

As ATLAS.ti is a tool for qualitative data analysis, the process is not fully automated. Before coding the data, you can review all results, make modifications or decide not to code certain finds.

> Artificial intelligence techniques have been developed for big data analysis. The data corpora usually handled by ATLAS.ti are considerably smaller. Thus, you cannot expect all results to be perfect. Reviewing the results will be a necessary component of the analysis process when using these tools. When working with the tools, you will see that the tools will add another level to your analysis. You find things that you simply do not see when coding the data manually, or would have not considered to code. We, at ATLAS.ti, consider manual and automatic coding to be complementary; each enhancing your analysis in a unique way.

AI Coding

ATLAS.ti is proud to offer the first of many truly automated features, powered by the world-leading GPT models from OpenAI.

AI Coding supports you, the researcher, by "reading" your documents and conducting fully automated inductive coding. Of course, you can review and refine the codes that are generated to suit your research, but it can save valuable time by processing your data and doing the menial task of initial coding for you. The time you save can be used to refine and merge codes, conduct analysis, and produce visualizations when reporting your research.

Please note that AI Coding is a beta feature. You are welcome to use it freely, and we welcome your feedback on all aspects of it.

> You can access AI Coding via the **Analysis** menu, the **Documents** button in the main toolbar, or in the Analysis section in the document or document group context menus.

Quick Overview

> Start by selecting the documents or document groups you want ATLAS.ti to code for you. After clicking "Start Coding," ATLAS.ti will ask if you want to proceed and show you a rough estimate of the time it will take to process your data.

AI Coding will upload your document content to ATLAS.ti and OpenAI servers. We will never upload your data without your explicit consent. If you wish to proceed, toggle the checkbox where you acknowledge that you agree to our EULA and Privacy Policy. OpenAI will NOT use ATLAS.ti user data to train OpenAI's models.

You can continue working while AI Coding is running.

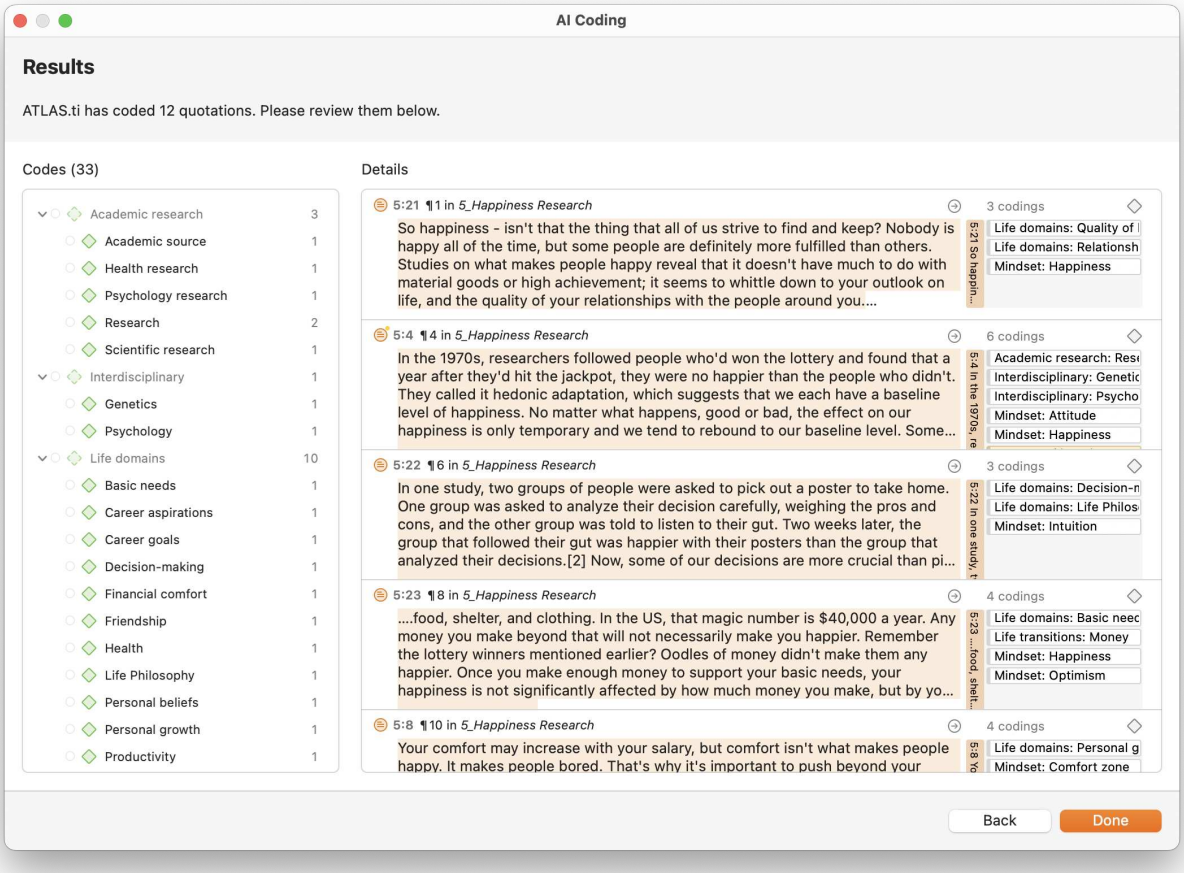
After AI Coding has finished, ATLAS.ti will present you an overview of the results.

Click "Review Results" to see the list of coded quotations with a list of codes on the left side. This view is fully interactive. Use it to review and refine the coding.

Select codes on the left side to show only quotations coded with this code, merge codes via drag-and-drop, delete codes you don't like, rename and color codes as you see fit, et cetera. Both the quotations as well as the codes can be right-clicked to show their context menu, giving you the full power of ATLAS.ti.

You can close this window now; the coding is done. Or you can leave it open and switch between the ATLAS.ti main window and this one to further refine and review.

All the codes that AI Coding coded with will be part of the code group "AI Codes".



How to get the Best Out of AI Coding

It's best to submit documents that belong together thematically in the same round of AI Coding. This will improve coding quality and enable ATLAS.ti to ignore repeating patterns across documents, such as interview questions.

AI Coding works per paragraph. For best results, interview questions or participant names in transcripts should be on their own paragraph, and the paragraph structure of a document should be well-defined. When editing your document, use the numbers on the left margin to determine separation between paragraphs.

PDF documents do not contain paragraphs, even if they look like they do, so results from PDF documents will likely be poor.

AI Coding skips very short paragraphs.

AI Coding only looks at the plain text of your documents. Existing codes, quotations, and formatting have no bearing on its results.

AI Coding In Depth

AI Coding works with the GPT family of large language models. These models are based on vast amounts of different texts and additional training by human researchers, enabling them to be used in a general-purpose way.

We at ATLAS.ti offer easy access to these capable models with our AI Coding feature without the need to understand and navigate the technical details and limitations. ATLAS.ti automatically splits your text into chunks that are handled the AI and passes them to the GPT models for repeated analysis. The results of the analysis are algorithmically combined to offer the best mix of codes covering different topics without producing an overwhelming amount of codes.

Here is an in-depth view on these steps:

Large language models are sensitive to the surrounding text as they have a window of attention, also called the context. Choosing the right context is key in working with a large language model. A short context can mean that not a lot information can be processed, because some words or even sentences only make sense in a larger context. Choosing a context that is too large overflows the model with information and makes it harder for code-extraction algorithms to find meaningful codes. ATLAS.ti choses contexts that are no less than 100 characters long, but breaks at natural paragraphs boundaries. We found that these confines have a positive impact on coding quality while leaving out most headings and titles which are of less importance to qualitative researchers. As a further step to reduce noise in the analysed data, ATLAS.ti removes paragraphs from analysis that have more than one occurrence, as these are likely recurring phrases from interviews or speaker names.

In the first step of analysis, the AI models are tasked with finding meaningful codings for each segment of data, acting as if the model was a qualitative research assistant. As the models from the GPT family are quite creative, AI Coding may produce similar codings, while others touch on the same topic but are expressed in dissimilar ways. This procedure can produce hundreds of different codes that are not manageable in a time-saving manner.

To address this, we use a characteristic of language models called embeddings, where each word or phrase can be associated with a point in a multidimensional space. One of the useful properties of this feature is that words and phrases that are more similar to one another are located nearer to each other than words or phrases that are less similar. Leveraging this property, ATLAS.ti clusters the codes by combining the ones nearest to each other into a collection. This clustering is repeated until a satisfactory number of collections is reached.

The combined codes are associated with the generated segments and proposed in the ATLAS.ti interface for viewing quotations.

> Keep in mind that, while it is generally beneficial that the GPT models were trained on vast amounts of text, this may in some situations result in incorrect output that does not accurately reflect real people, places, or facts. In some cases, GPT models may encode social biases such as stereotypes or negative sentiment towards certain groups. You should evaluate the accuracy of any output as appropriate for your use case.

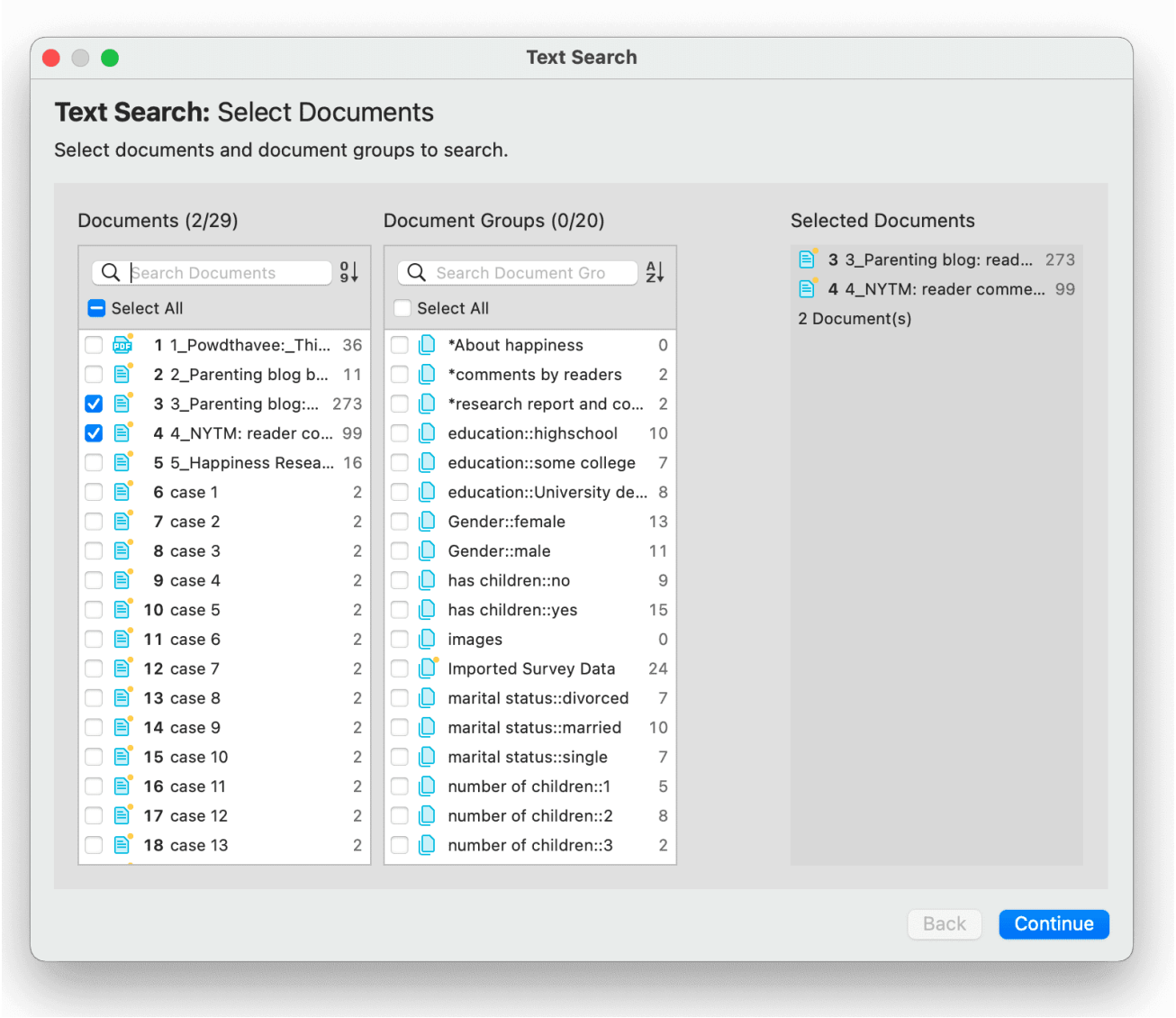
Text Search and Auto-Code

Video Tutorial: Text search and auto-code. When using this tool, you enter your own search term and can let ATLAS.ti automatically code your data. The tool offers a number of additional functions that make it more than a simple auto coding tool:

- You can select synonyms. Synonyms are available in English, German, Spanish, Portuguese, French, Dutch, Russian and Simplified Chinese.
- You can combine multiple search terms using Boolean operators (AND; OR) to look for occurrences within a sentence or paragraph, or multiple syllabuses in a word.
- You can search for inflected forms, i.e. searching for "run" will also search for running, runs, ran.
- You can use wildcards (*)
- You can search for exact phrases by entering parentheses as in: „limited liability corporations".

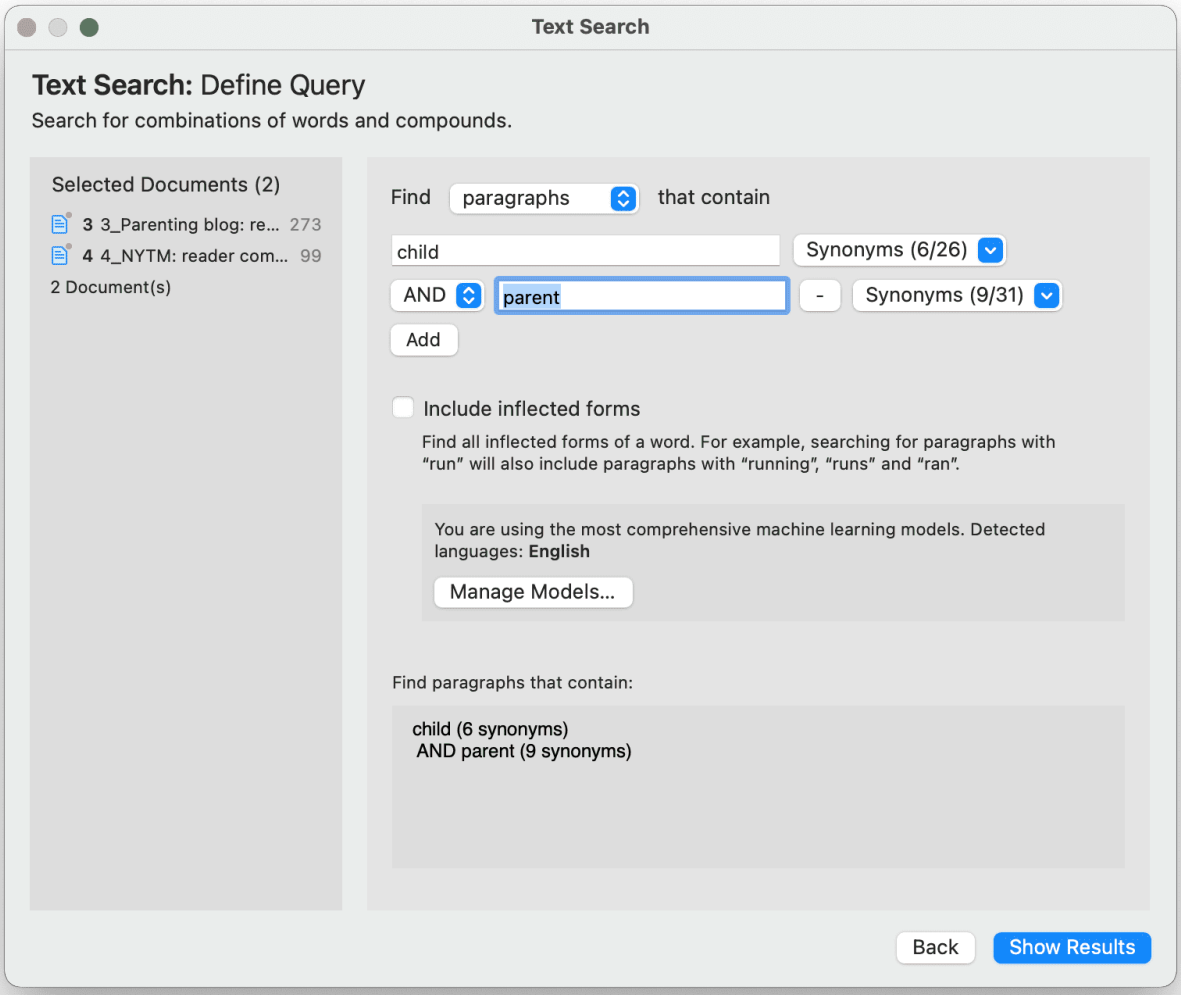
Carrying out a text search

> To open the tool, select the **Code** > **Search & Code** > **Text Search** from the main menu.
> inst
> Select documents or document groups that you want to search and click **Continue**.



Select the base unit for the search and the coding:

- Paragraphs
- Sentences
- Words
- Exact matches (wild cards can be used)



Enter a search term. If *synonyms* are available, you can select them from the drop-down list right to the search entry field.

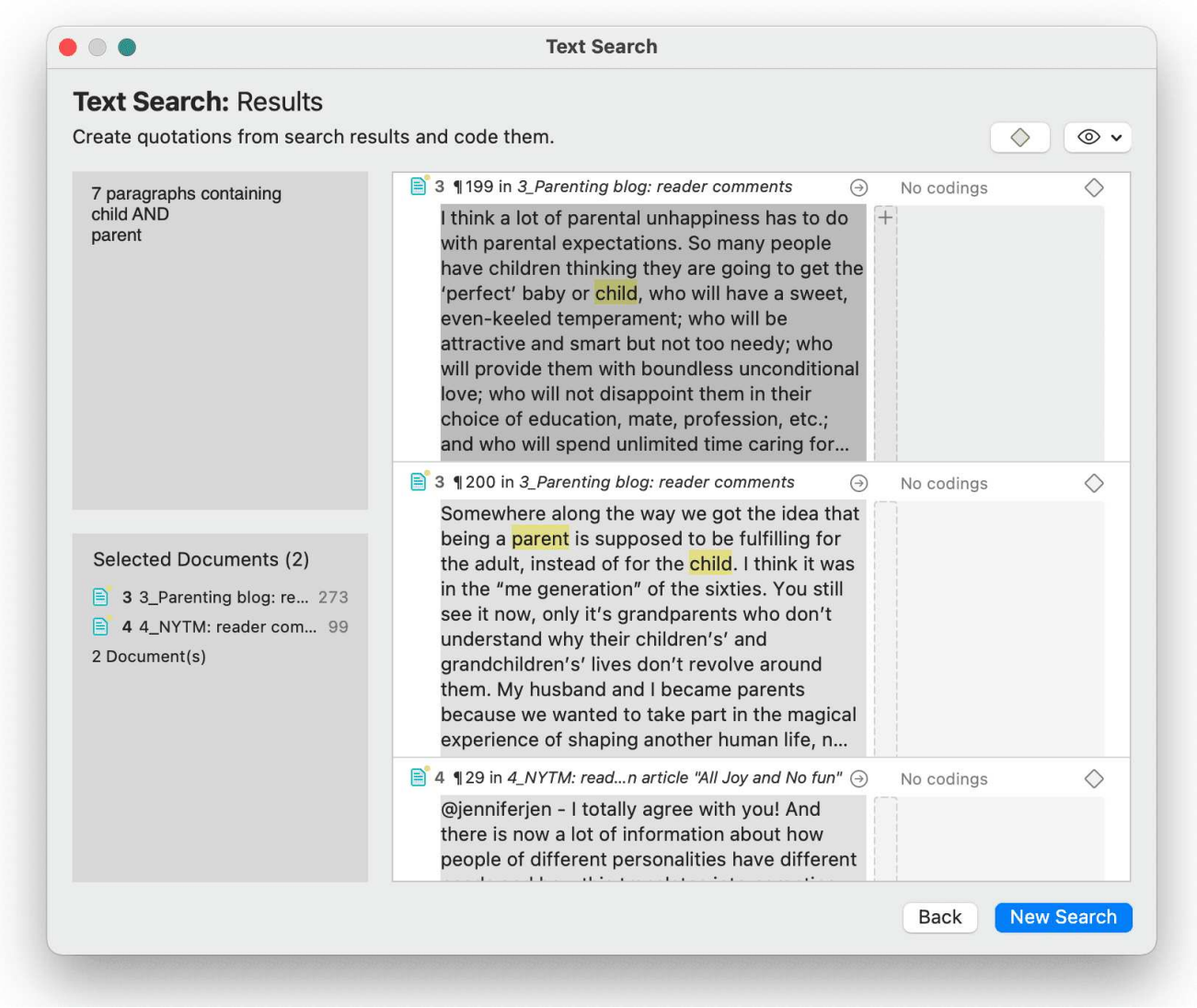
You can add more search terms linking them with Boolean operators:

- AND: All of the entered search terms must occur in the selected context (paragraph, sentence, word).
- OR: Results are returned if any of the search terms occur in the selected context (paragraph, sentence, word).

Activate the option **inflected forms** if desired. This option is currently available for all interface languages.

Inflected forms: The plural forms of nouns, the past tense, past participle, and present participle forms of verbs, and the comparative and superlative forms of adjectives and adverbs are known as inflected forms. To improve results you can download and install a more comprehensive model. To do so, click on *Manage Models*.

> To run the search, click on **Continue**.
> The result page shows you a Quotation Reader indicating where the quotations are when (auto-)coding the data. If coding already exist at the quotation, it will also be shown.



By clicking on the **eye**, you can change between small and large previews.

> You can auto code all results with one code by highlighting all data segments, e.g. via Ctrl+A. Then select **Apply Codes**, enter a code name and click the **plus** icon.

Depending on the area you have selected, either the exact match, the word, the sentence or the paragraph is coded.

> Another options is to review each find and code it by clicking on the coding icon. This opens the regular Coding Dialogue.

Exact Match Search

An *exact match* search finds the characters as they are entered into the search field. The search results for 'emotion' could look as follows:

- emotions
- emotionless
- demotion
- demotional

If you only want to find "emotion", you need to add parentheses around the search term. See: *Exact Phrase Search*.

Exact Phrase Search

When you want to search using an exact phrase, you simply surround your search expression with quotation marks. For example, if you want to search for limited liability corporations but only want to retrieve results in which the terms appear as an exact phrase, type "limited liability corporations" (including the quotation marks) into the search field.

Your search results will only include data segments that contain the exact phrase - limited liability corporations - as typed between the quotation marks, but will not include results where the terms are separated by other words, as in: corporations *with* limited liability.

For best results, do not include wildcard characters in an exact phrase search unless the wildcard character * is part of the phrase you are looking for.

Expert Search with Regular Expressions (regex)

GREP is a well-known search tool in the UNIX world. The original GREP tool printed each line containing the search pattern, hence the acronym **GREP** (Globally search for a Regular Expression and Print matching lines).

In ATLAS.ti, the results of a GREP search are not printed line-by-line; rather, the text matching the search pattern is highlighted on the screen, or you can automatically code the results including some surrounding context.

The core of a GREP search is the inclusion of special characters in the search string that control the matching process. GREP finds instances in your data that match certain patterns.

> You can test and debug any regular expression you formulate on this website: https://regex101.com/

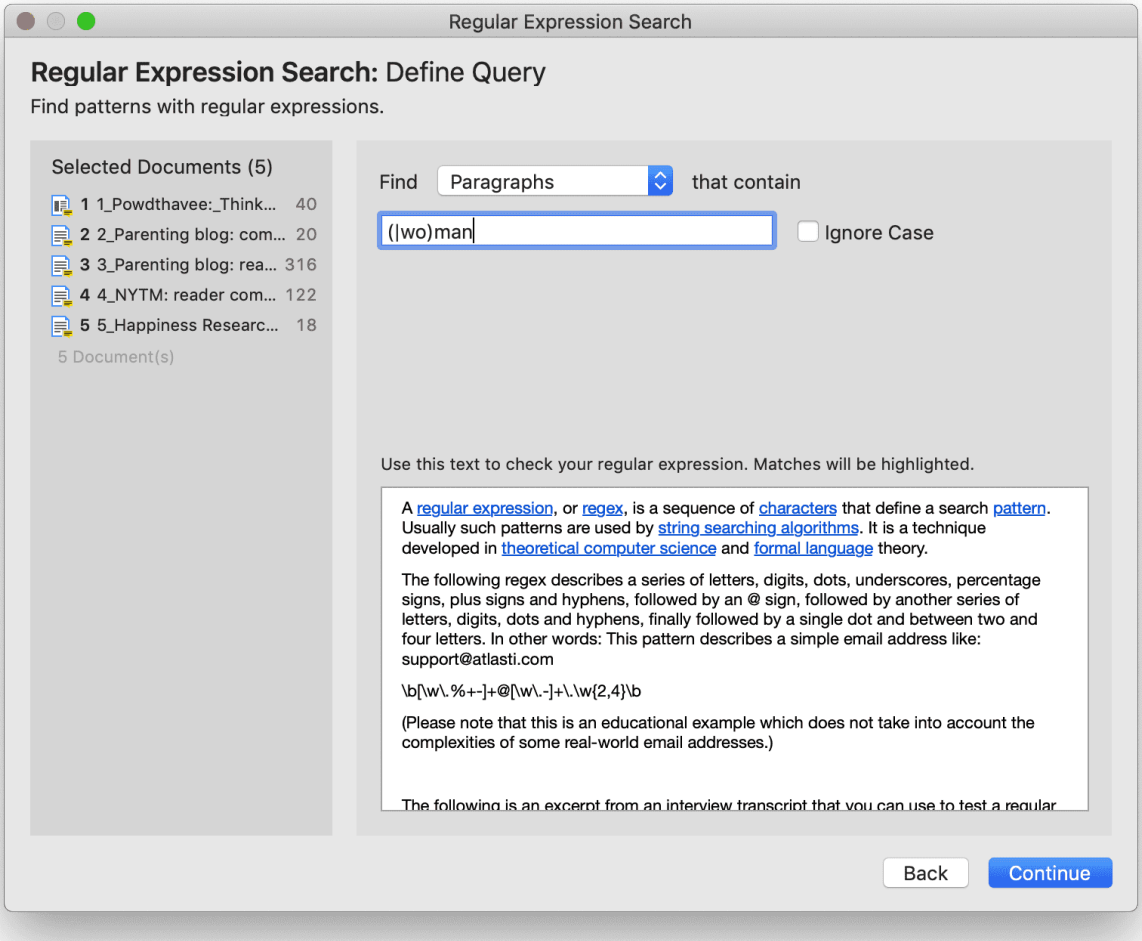
Carrying out a text search with Regex

> To open the tool, select **Code** > **Search & Code** > **Regular Expression Search** from the main menu.

> Select documents or document groups that you want to search and click **Continue**.

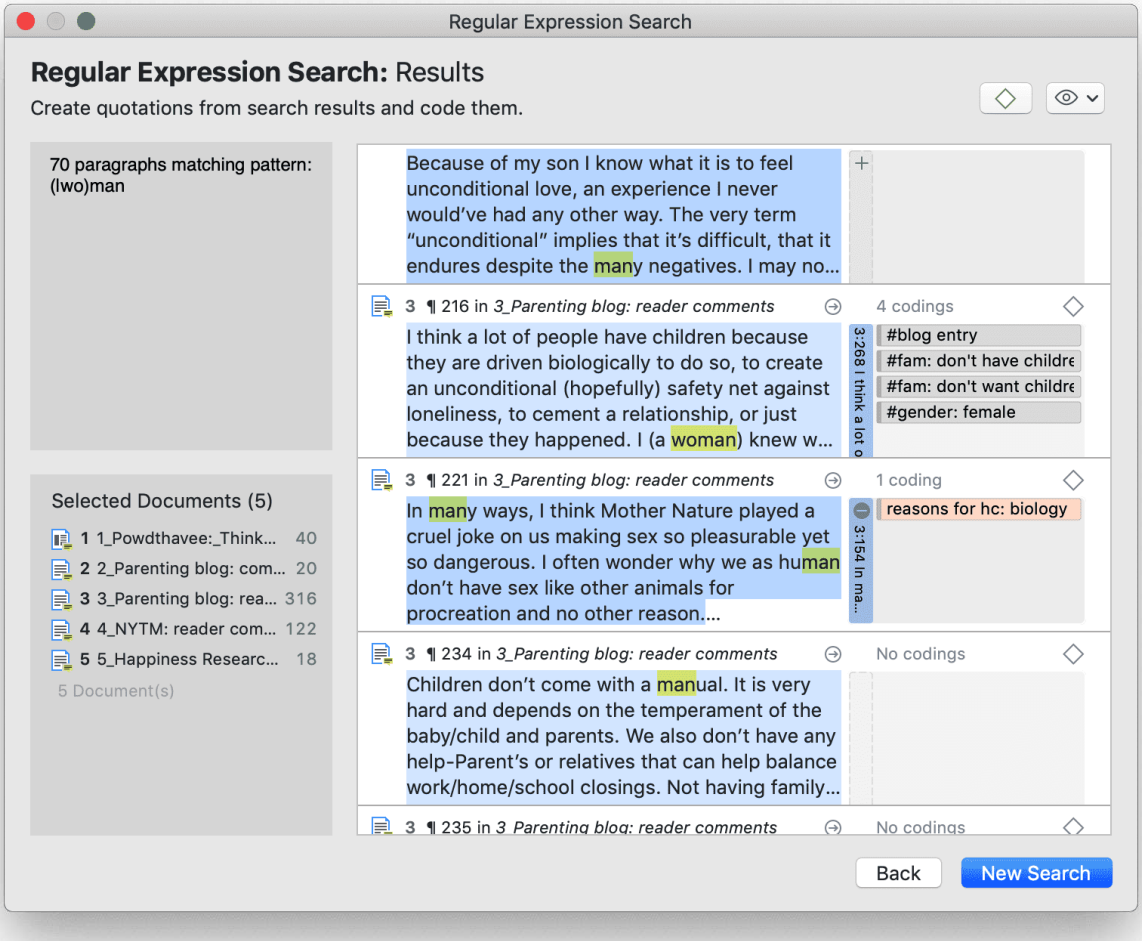
> Select the base unit for the search and the coding:

- Paragraphs
- Sentences
- Words
- Exact matches



Enter a search term. You can test your search expression in the text that you see in the lower half of the screen.

To run the search, click on **Continue**.
The result page shows you a Quotation Reader, indicating where the quotations are when (auto)coding the data. If codings already exist at the quotation, those will also be shown.



> By clicking on the **eye** icon, you can change between small, medium and large previews.

> You can autocode all results with one code by highlighting all data segments, e.g. via Ctrl+A. Then select **Apply Codes**, enter a code name and click the **plus** icon. Depending on the area you have selected, either the exact match, the word, the sentence or the paragraph is coded.

> Another options is to review each find and code it by clicking on the coding icon. This opens the regular Coding Dialogue.

GREP Examples

GREP Expression	Description
^	Matches an empty string at the beginning of a line.

GREP Expression	Description
$	Matches an empty string at the end of a line.
.	Matches any character except a new line.
+	Matches at least one occurrence of the preceding expression or character.
*****	Matches the preceding element zero or more times. For example, **ab*c** matches "ac," "abc," "abbbc," etc.
?	Matches the preceding element zero or one time. For example, **ba?** matches "b" or "ba."
[]	Matches a range or set of characters: **[a-z]** or **[0-9]** or **[aeiou]**. For example: **[0-9]** finds all numeric characters, while **[^0-9]** finds all non-numeric character
\b	Matches an empty string at a word boundary
\B	Matches an empty string not a word boundary
<	Matches an empty string at the beginning of a word
>	Matches an empty string at the end of a word

Enclose ORed expressions with parentheses if OR should be restricted to certain sequences of characters or expressions. See example below

Backspace character disables the special GREP functionality of the following character:

GREP Expression	Description
\d	Matches any digit (equivalent to **[0-9]**)
\D	Matches anything but a digit
\s	Matches a white-space character
\S	Matches anything but a white-space character
\w	Matches any word constituent character
\W	any character but a word constituent

Character classes

Character Class	Description
[:alnum:]	Any alphanumeric, i.e., a word constituent, character
[:alpha:]	Any alphabetic character
[:cntrl:]	Any control character. In this version, it means any character whose ASCII code is < 32.
[:digit:]	Any decimal digit
[:graph:]	Any graphical character. In this version, this mean any character with the code >= 32.
[:lower:]	Any lowercase character
[:punct:]	Any punctuation character
[:space:]	Any white-space character

Character Class	Description
`[:upper:]`	Any uppercase character
`[:xdigit:]`	Any hexadecimal character

Note that these elements are components of the character classes, i.e. they have to be enclosed in an extra set of square brackets to form a valid regular expression. A non-empty string of digits or arbitrary length would be represented as **`[[:digit:]]+`**

Examples of GREP Searches

In the following, a few search examples are presented showing the matching GREP expression in the column on the right.

- The expression **`man|woman`** matches "man" and "woman." You could also use **`(|wo)man`** to the same effect.
- **`H(a|e)llo`** matches "Hello" and "Hallo."
- **`H(a|e)+llo`** matches "Haaaaaallo" as well as "Heeeeeaaaaeaeaeaeaello."
- And how about **`the (angry|lazy|stupid) (man|woman) (walk|run|play|fight)ing with the gr(a|e)y dog`** - get the idea?

Named Entity Recognition (NER)

In natural language processing, Named Entity Recognition (NER) is a process where a sentence, or a chunk of text is parsed through to find entities that can be put under categories like person, organization, location, or miscellaneous like work of arts, languages, political parties, events, title of books, etc.

This function is available for the following languages:

- English
- German
- Spanish
- Portuguese
- French
- Dutch
- Russian
- Simplified Chinese

You can think of it like a special auto coding procedure, where you as the user do not enter a search term. Instead, ATLAS.ti goes through your data and finds entities for you.

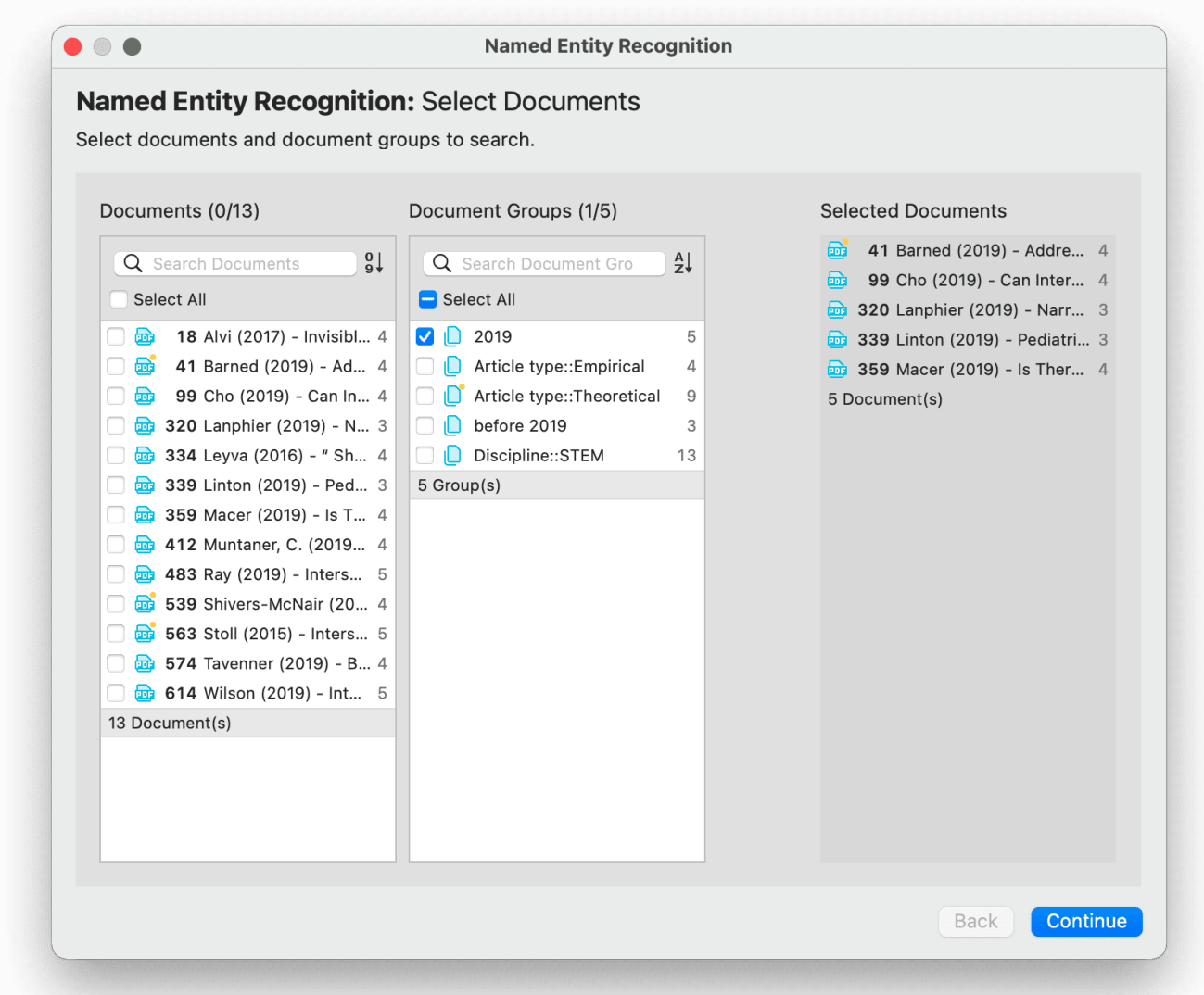
You can select which entities you want to search for:

- person
- organization
- location
- miscellaneous (work of arts, languages, political parties, events, title of books, etc.)

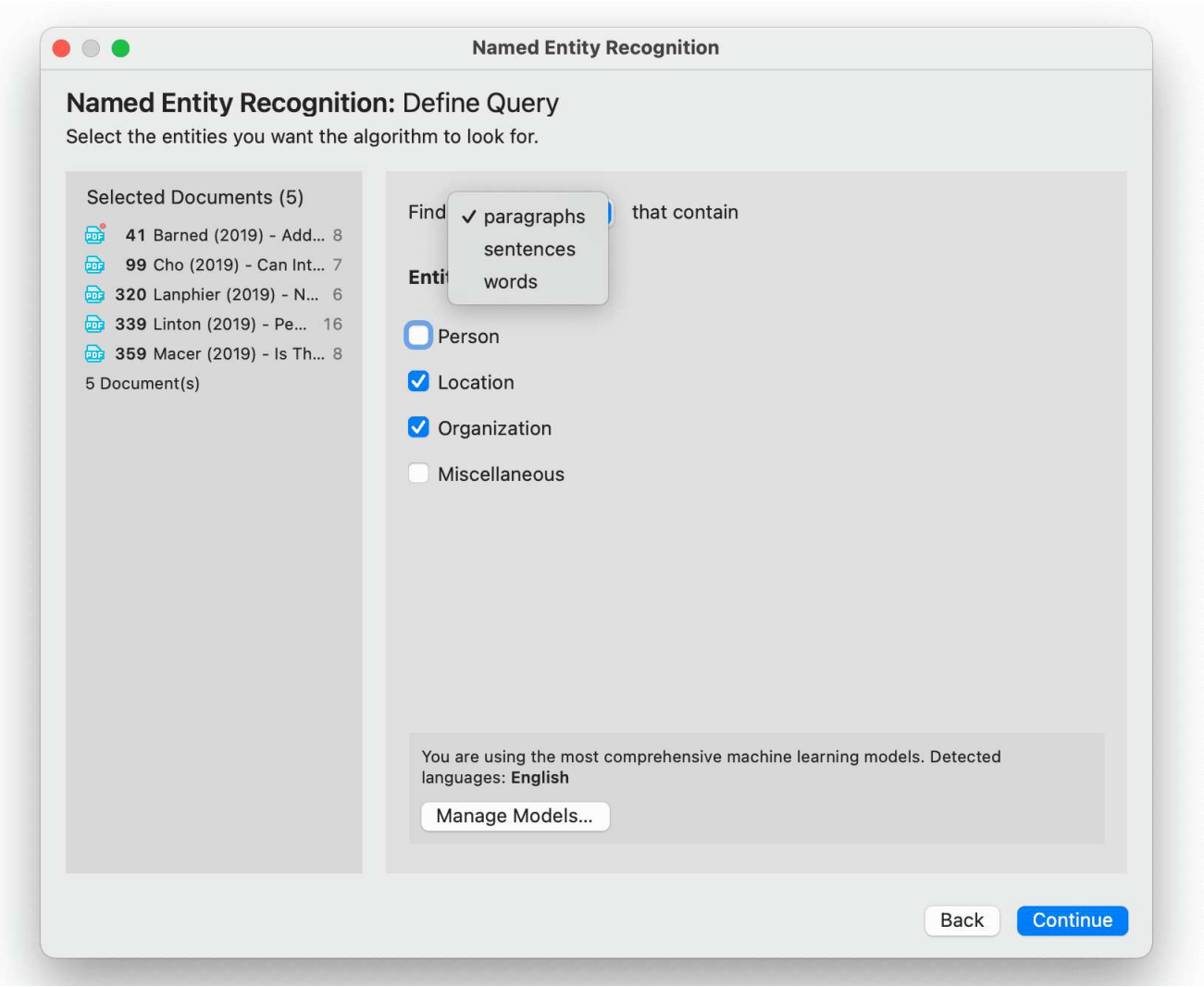
After the search is completed, ATLAS.ti shows you what it found, and you can make corrections. In the next step you can review the results in context and code all results with the suggested codes, or decide for each hit whether to code it or not.

To open the tool:

> From the main menu, select **Code** > **Search & Code** > **Named Entity Recognition**.
> inst
> Select documents or document groups that you want to search and click **Continue**.



Select whether the base unit for the search, and the coding should be **paragraphs**, **sentences**, or **word**, and which entity category you want to search for.



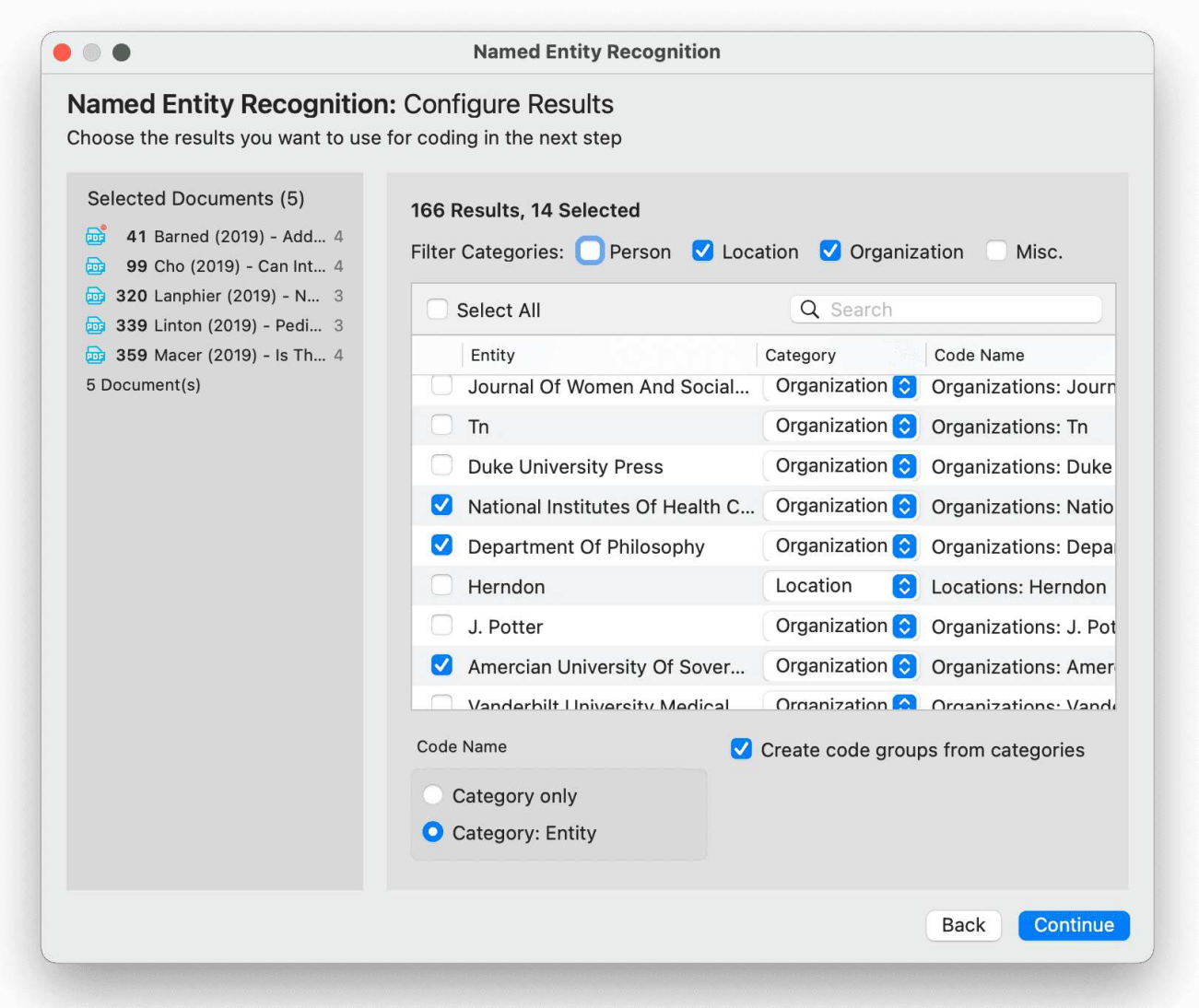
Manage Models: If you want to improve your results, you can download and install a more comprehensive model.

Click on Manage Models if you want to install or uninstall an extended model.

Click Continue to begin searching the selected documents. On the next screen, the search results are presented, and you can review them.

Reviewing Search Results

If you selected to search for all entity types (persons, location, organization and miscellaneous), you can review them all together, or just focus on one entity at a time. To do so, deactivate all other entity types.



> Select all results that you want to code. If a result is interesting but comes up in the wrong category, you can change the category in the second column of the result list. In the third column, the suggested code name is listed.

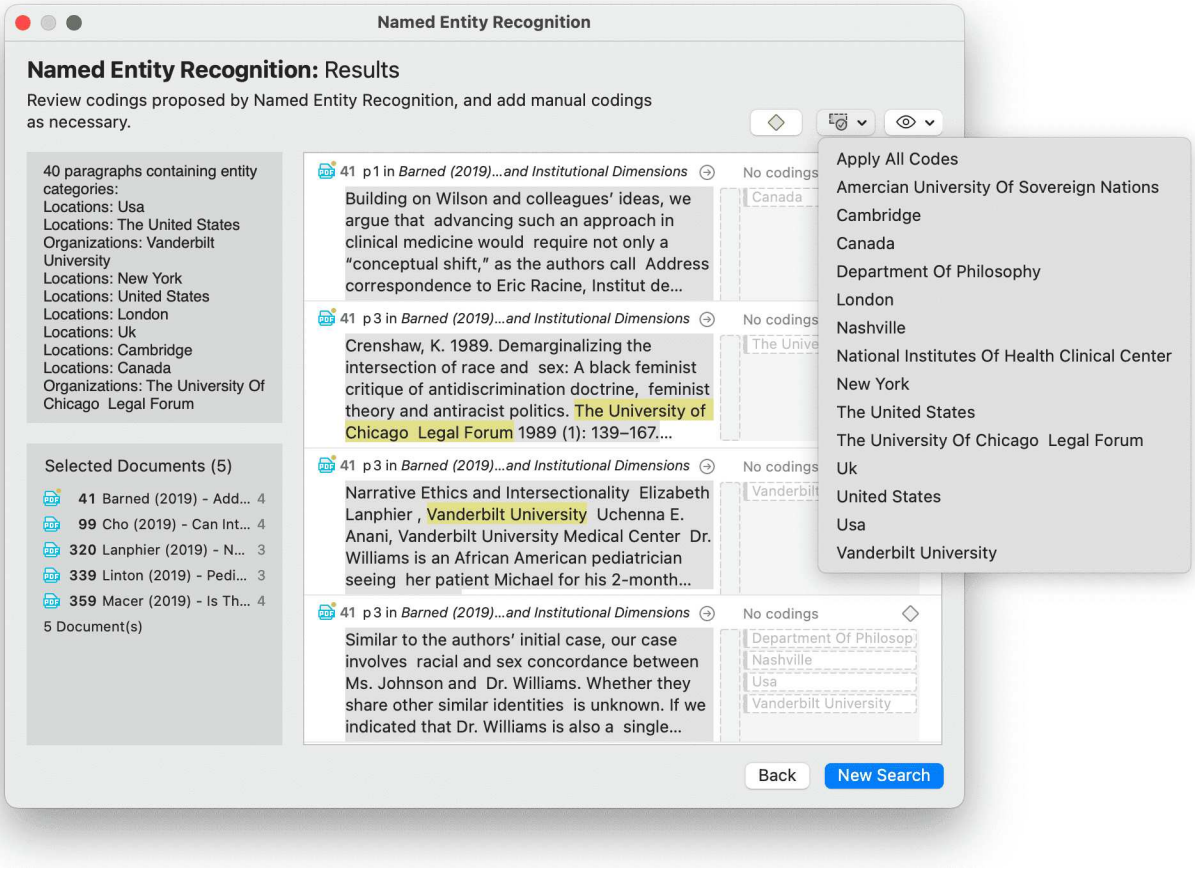
Autocode results

You have three options for the code name:

- **Category only**: If you select this option, all search hits will be coded under the NER category: Person, Location, Organization, Miscellaneous
- **Category: Entity**: If you select this option, categories with subcodes will be created for the NEW categories: Person, Location, Organization, Miscellaneous. The entities will become the subcodes.

> You also have the option to group all codes of a NER category into a code group. This option is useful if you selected the second option with subcodes.

> Click **Continue** to inspect the results in context.
> The result page shows you a Quotation Reader indicating where the quotations are when coding the data with the proposed code. If coding already exist at the quotation, it will also be shown.



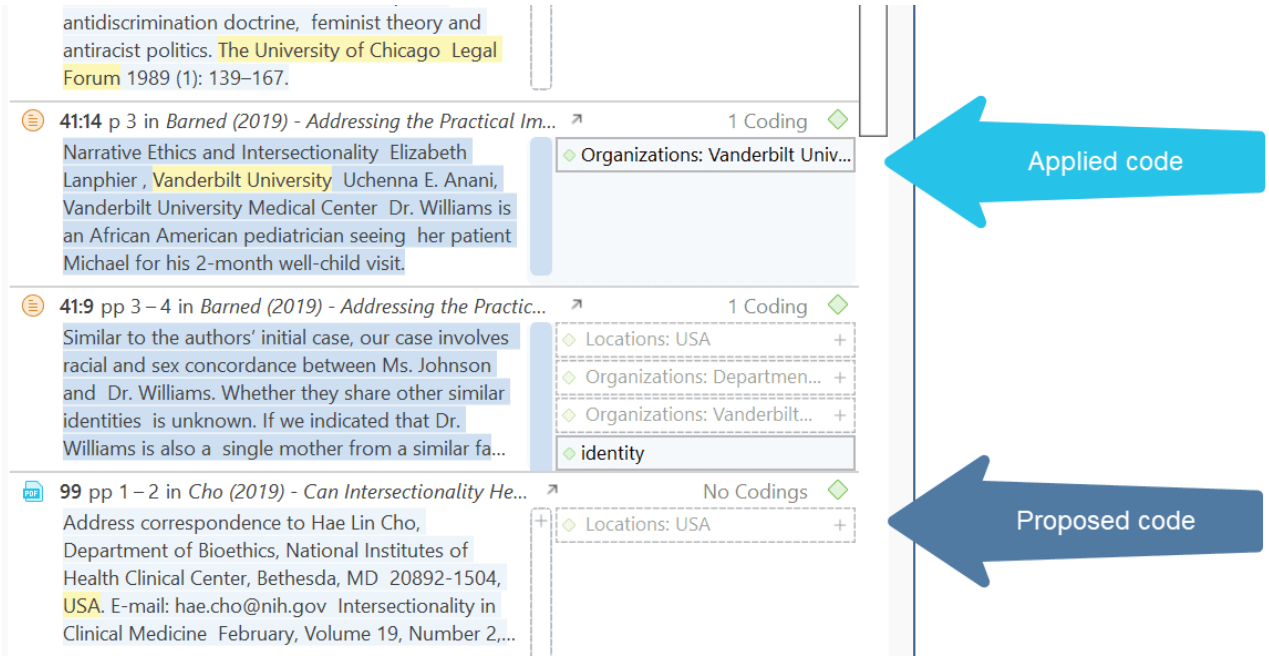
By clicking on the **eye**, you can change between small and large previews.

> You can go through and review each data segment and then code it by clicking on the **plus** next to the code name. Or, you can code all results by selecting the button **Apply Codes**. You can select the first option *Apply All Codes*, or select only one code from the list.

If you have selected the category: subcode option for coding, the coding results might look as follows:

Depending on the area you have selected at the beginning, either the word, the sentence, or the paragraph is coded.

The regular Coding Dialogue is also available to add or remove codes.



The Search Engine Behind NER

ATLAS.ti uses spaCy as its natural language processing engine. More detailed information can be found here.

Input data gets processed in a pipeline - one step after the other as to improve upon the derived knowledge of the prior step. Click here for further details.

The first step is a tokenizer to chunk a given text into meaningful parts and replace ellipses etc. For example, the sentence:

“I should’ve known (didn't back then).” will get tokenized to: “I should have known (did not back then).“

The tokenizer uses a vocabulary for each language to assign a vector to a word. This vector was pre-learned by using a corpus and represents a kind of similarity in usage in the used corpus. Click here more information.

The next component is a tagger that assigns part-of-speech tags to every token and lexemes if the token is a word. The character sequence “mine”, for instance, has quite different meanings depending on whether it is a noun of a pronoun.

Thus, it is not just a list of words that is used as benchmark. Therefore, there is also no option to add your own words to a list or to see the list of words that is used.

The entity recognizer is trained on wikipedia-like text and works best in grammatically correct, encyclopedia-like text. We are using modified pre-trained/built-from-the-ground-up models - depending on the language.

Sentiment Analysis

Video Tutorial: Sentiment Analysis. Sentiment analysis is the interpretation and classification of emotions (positive, negative and neutral) within text data using text analysis techniques.

This function is available for the following languages:

- English
- German
- Spanish
- Portuguese
- French
- Dutch
- Russian
- Simplified Chinese

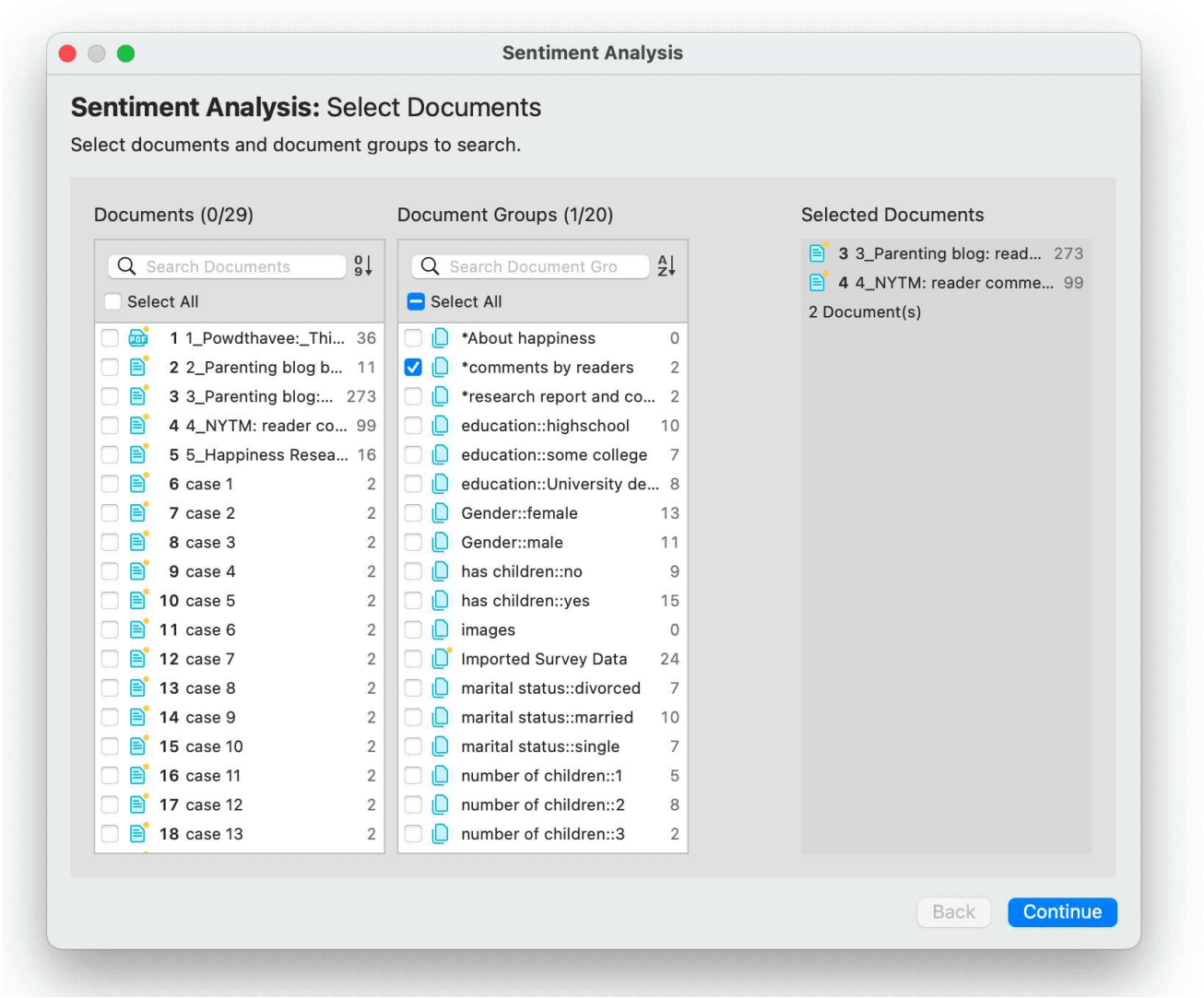
Application Examples

- identifying and cataloguing a piece of text according to the tone conveyed by it.
- understanding the social sentiment of a brand, product or service.
- identifying respondent sentiment toward the subject that is discussed in online conversations and feedback.
- analysing student evaluations of lectures, seminars, or study programs.

Sentiment analysis works best on structured data like open-ended questions in a survey, evaluations, online conversations, etc.

Carrying out a Sentiment Analysis

> To open the tool, select **Code** > **Search & Code** > **Sentiment Analysis** from the main menu.
> inst
> Select documents or document groups that you want to search and click **Continue**.



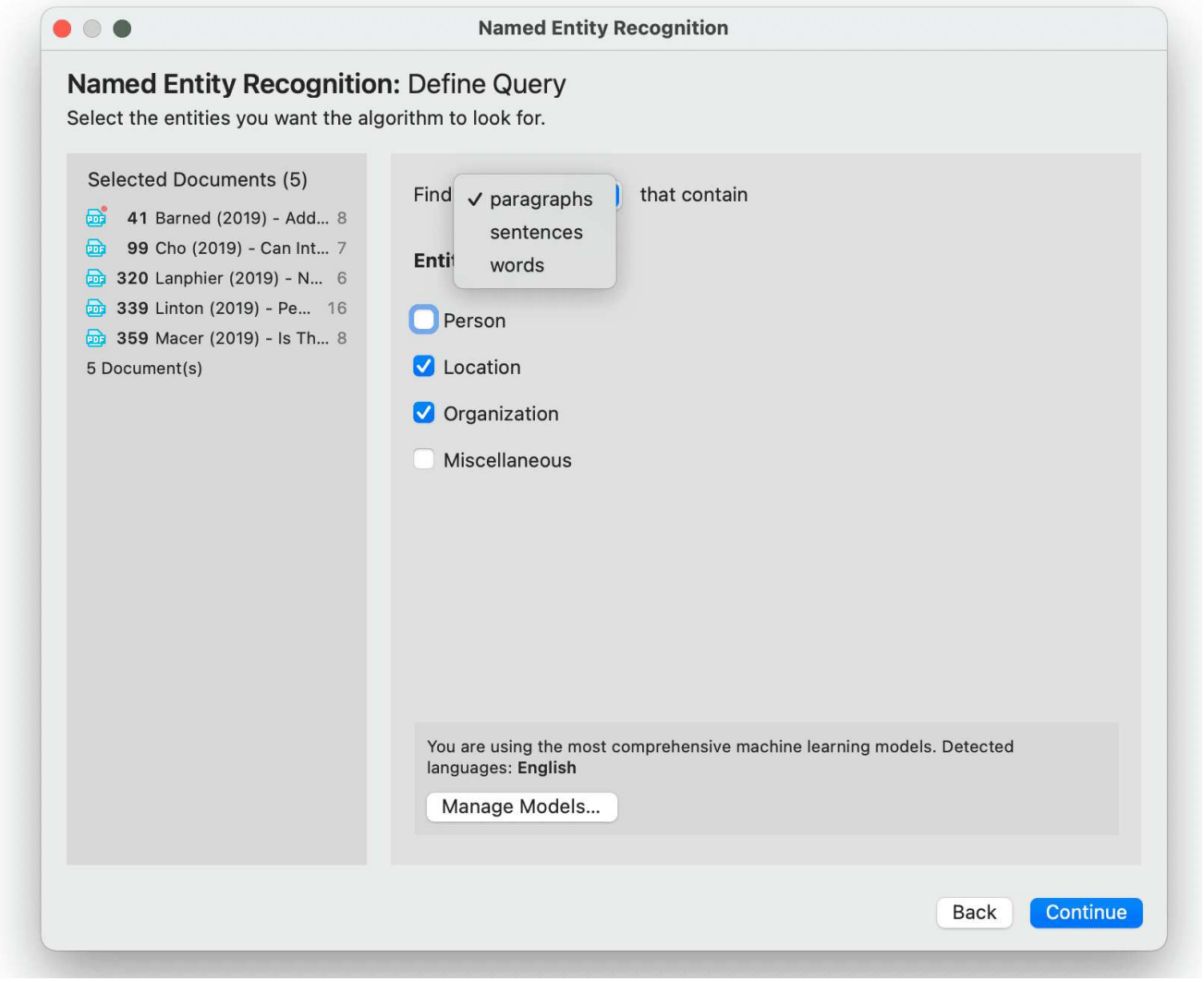
> Select the base unit for the search and the coding:

- paragraphs
- sentences

> Select the type of sentiment you want to code:

- positive
- neutral
- negative

> ATLAS.ti proposes subcode labels for each sentiment: Positive / Neutral / Negative. If you want to use different names, you can change them here.



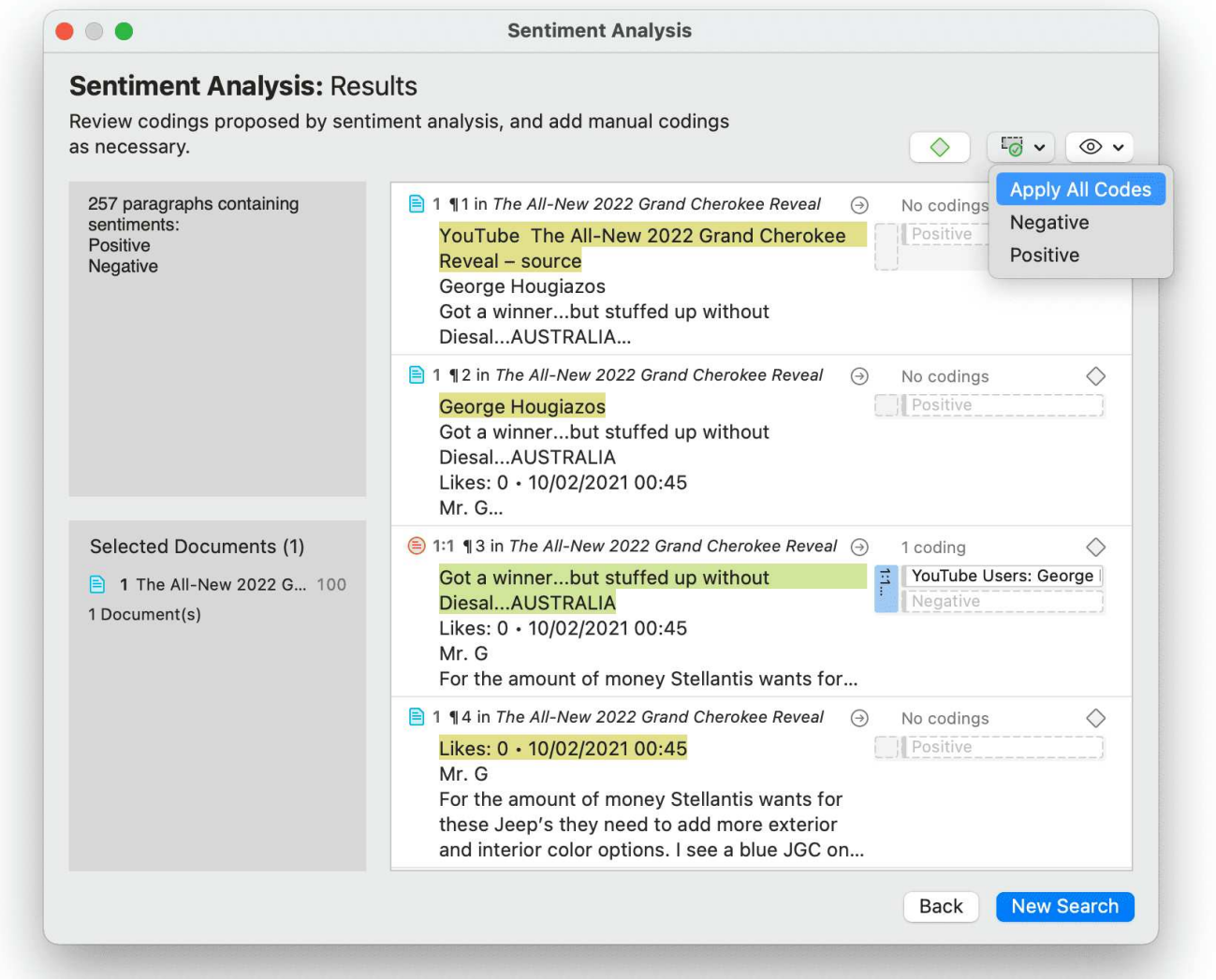
Manage Models: If you want to improve your results, you can download and install a more comprehensive model.

Click on Manage Models if you want to install or uninstall an extended model.

Click Continue to begin searching the selected documents. On the next screen, the search results are presented, and you can review them.
The result page shows you a Quotation Reader indicating where the quotations are when coding the data with the proposed code. If coding already exist at the quotation, it will also be shown.

By clicking on the eye icon, you can change between small. medium and large previews.

You can code all results with one of the proposed codes or with all proposed codes at once; or you can go through review each data segment and then code it by clicking on the plus next to the code name.



Depending on the area you have selected at the beginning, either the sentence or the paragraph is coded.

The regular Coding Dialogue is also available to add or remove codes.

The Search Engine Behind the Sentiment Analysis

We are using spaCy as our natural language processing engine. More detailed information can be found here.

Input data gets processed in a pipeline - one step after the other as to improve upon the derived knowledge of the prior step. Click here for further details.

The first step is a tokenizer to chunk a given text into meaningful parts and replace ellipses etc. For example, the sentence:

“I should’ve known(didn't back then).” will get tokenized to: “I should have known (did not back then).“

The tokenizer uses a vocabulary for each language to assign a vector to a word. This vector was pre-learned by using a corpus and represents a kind of similarity in usage in the used corpus. Click here more information.

The next component is a tagger that assigns part-of-speech tags to every token and lexemes if the token is a word. The character sequence “mine”, for instance, has quite different meanings depending on whether it is a noun of a pronoun.

Thus, it is not just a list of words that is used as benchmark. Therefore, there is also no option to add your own words to a list or to see the list of words that is used.

The sentiment analysis pipeline is trained on a variety of texts ranging from social media discussions to peoples’ opinions on different subjects and products. We are using modified pre-trained/built-from-the-ground-up models - depending on the language.

Find Concepts and Auto-Code

Video Tutorial: Concept search. Let ATLAS.ti find relevant concepts for you. Review them in context and auto code.

This function is available for the following languages:

- English
- German
- Spanish
- Portuguese
- French
- Dutch
- Russian
- Simplified Chinese

What makes a concept?

In a first step, the significant noun phrases (for example, health care system) are detected in order to identify the most frequently occurring concepts in the data. In the second step, the concepts and their frequencies are collected across all files in the set being processed.

ATLAS.ti actively filters the concepts — only the most relevant concepts are presented in the results. You can review the concepts in their surrounding context in the Quotation Reader, and then decide which concepts you want to be coded automatically.

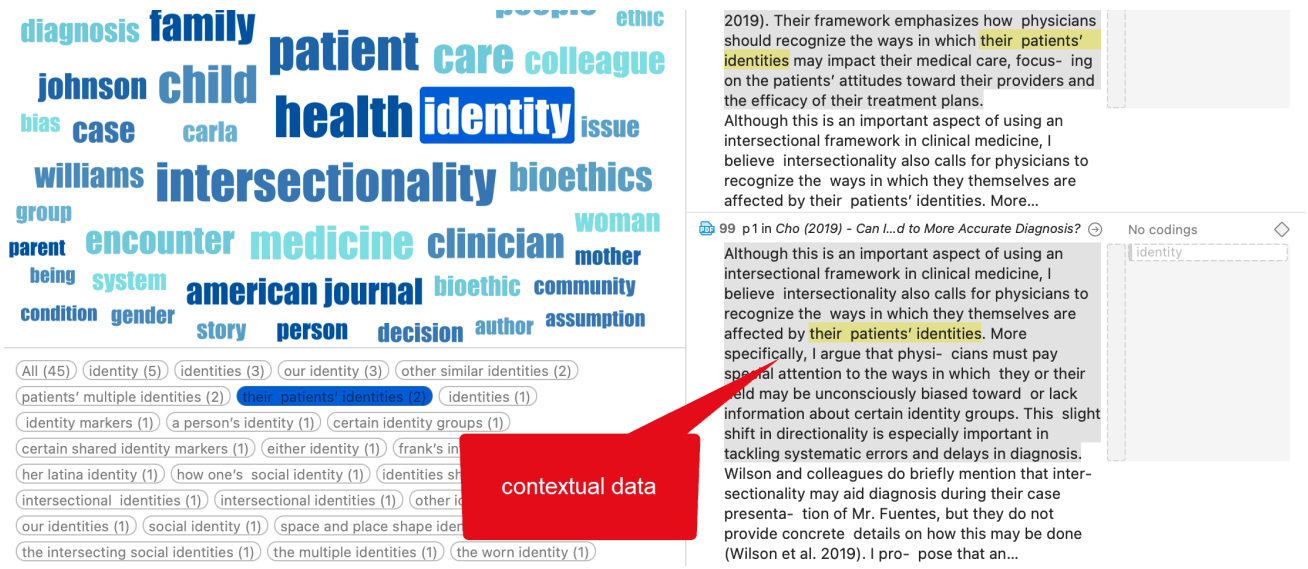
You can search for concepts in documents, document groups, codes or code groups for concepts.

> To start a concept analysis, from the main menu select **Analysis / Concepts**.

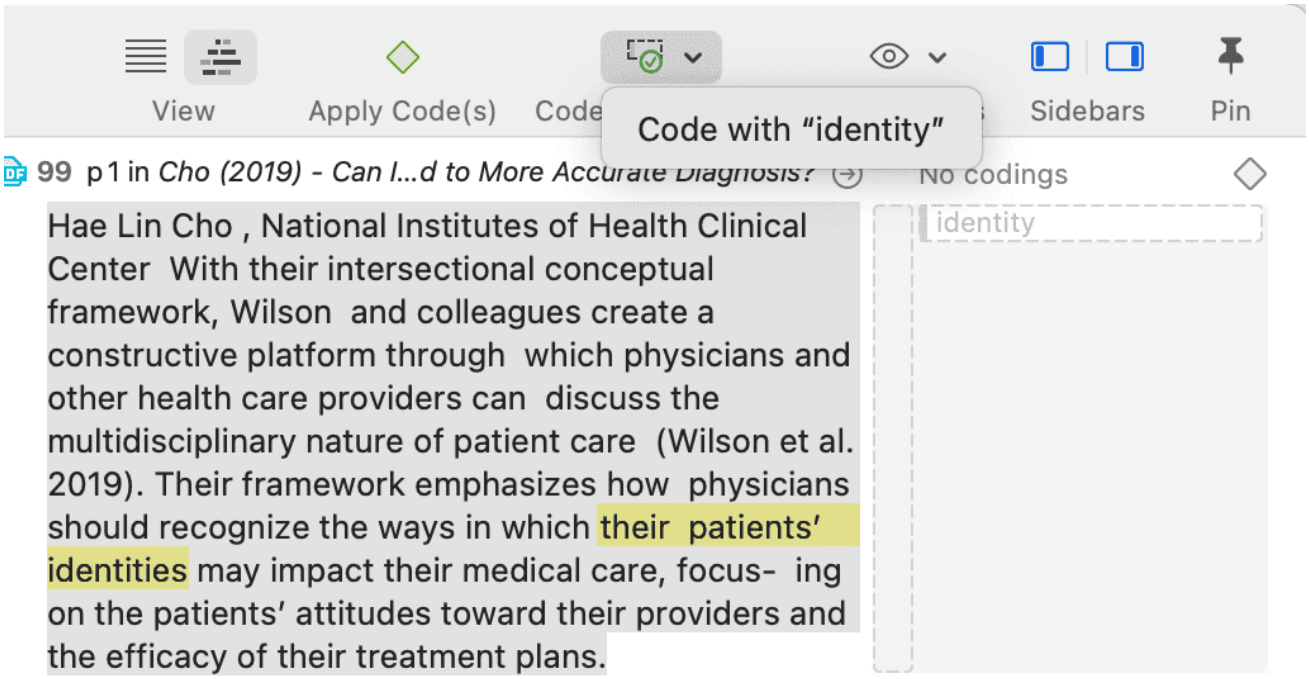
> From the dropdown menu on the top left select where you want to search (documents, document groups, codes or code groups). Then select one or multiple documents, document groups, codes, or code groups.

As soon as you select an entity, ATLAS.ti begins to analyse the data. The results are displayed in form of a word cloud. Optionally you can also view the result as list. Just change the view option to **List**.

Selecting a concept or any of its noun phrases displays the corresponding text matches on the right-hand side.



To code a text match, select it and click the **Code with Concept** button in the toolbar.


View
Apply Code(s)
Code
Code with “identity”
Sidebars
Pin
99 p 1 in Cho (2019) - Can I...d to More Accurate Diagnosis?
No codings
Hae Lin Cho , National Institutes of Health Clinical Center With their intersectional conceptual framework, Wilson and colleagues create a constructive platform through which physicians and other health care providers can discuss the multidisciplinary nature of patient care (Wilson et al. 2019). Their framework emphasizes how physicians should recognize the ways in which their patients' identities may impact their medical care, focus- ing on the patients' attitudes toward their providers and the efficacy of their treatment plans.
identity

Opinion Mining

Opinion mining performs a sentiment analysis on a given text and then further analyses the positive and negative text segments for their main aspects. These are nouns and verbs that are modified by affections like "superb sound" or "awesome attitude". The result is a visualisation of the most important aspects for positive and negative sentiments. Review them in context and auto code.

This function is available for the following languages:

- English
- German
- Spanish
- Portuguese
- French
- Dutch
- Russian
- Simplified Chinese

You can perform opinion mining on documents, document groups, codes or code groups.

> To open the opinion mining tool, from the main menu select **Analysis / Opinion Mining**.

> From the dropdown menu on the top left select where you want to search (documents, document groups, codes or code groups). Then select one or multiple documents, document groups, codes, or code groups.

As soon as you select an entity, ATLAS.ti begins to analyse the data. Detected aspects are displayed in a two-column layout. Aspects with positive sentiment make up the left column, while those with negative sentiment are displayed in the right one. If both positive and negative text segments are found for a sentiment, it will be present in both columns. Since the columns are sorted by number of hits for their respective sentiment, the positive and negative results may occur in different places in each column.

Selecting an aspect will show its affections along the bottom, and the corresponding text matches on the right-hand side. You can further filter these results by selecting an affection.

To code a text match, select it and click the **Code** button in the toolbar.

Analyzing Focus Groups

Generally, it can be said that analyzing focus group data is not much different from the analysis of any other kind of interview data. Most people who ask for specific analytic tools in focus groups do so because they don't have experience with analyzing other kinds of qualitative data, so they think there must be something unique about focus groups.

Focus groups are different to a certain extent as there is more interaction. In the vast majority of studies, researchers are interested in the content of what gets said, rather than the mechanics of how it gets said.

If you are interested in the interaction, then a discourse analysis might be an appropriate method. In addition to the regular tools you use in ATLAS.ti for data analysis, consider using hyperlinks to explore the interaction Quotation Level and Hyperlinks.

The most widely used analysis methods for interview as well as focus group data are versions of content analysis and thematic analysis. For some inspiration, take a look at this chapter on focus group analysis.

ATLAS.ti facilitates the coding of speaker units, so that you can compare responses of different speakers or different group of speakers by attributes like age, gender, etc.

In order for ATLAS.ti to recognize speakers, you need to use speaker IDs or names consistently when transcribing the data. See Guidelines for Preparing Focus Group Data for more detail.

> Focus group auto coding requires text documents in doc, docx, rtf, or txt format. You cannot use PDF documents with this function.

Guidelines for Preparing Focus Group Data

There is only one requirement when preparing focus group data: Each speaker or needs to have a unique identifier and this identifier should be applied consistently throughout the entire transcript.

ATLAS.ti offers two default patterns to recognize speakers:

- name: (pattern 1)
- @name: (pattern 2)

Using pattern 2 when transcribing data, it is unlikely that ATLAS.ti finds anything but speakers. Searching for pattern 1, ATLAS.ti also finds things like *"for example:....."*

Custom Pattern

You can also define your own pattern including the use of regular expressions.

This might be useful if you have previously prepared transcripts and speaker IDs have not been used consistently.

For instance, the regular expression: To+(m|n) matches "Toom," "Ton," or "Toon" to find different spellings of the name 'Tom'.

([A-Z]+): recognizes identifiers consisting of letters from A to Z.

([A-Z]+[0-9]+): recognizes identifiers that consist of a combination of letters and numbers

For more information, see Regular Expressions (GREP).

> You can use this functionality to auto code any data that has a specific structure. It does not necessarily have to be a speaker. It could be a date, a number, or any other type of identifier.

Example transcripts

The speaker IDs do not have to be in bold letters. Bold letters are used here only to make it easier for you to see, which ones are the speaker IDs.

Example A (pattern 1)

Alex: I don't know, I'm the sort, I don't really struggle to make friends cos everyone tells me I've got a big mouth, and I don't stop talking [laughs]

Tom: So is that how, is that how you met just, just through you striking up a conversation?

Deb: I'm trying to think exactly [laughs] I think that's what it was, we were both in the same research methods class ...

Example B (pattern 1)

Alex:

I don't know, I'm the sort, I don't really struggle to make friends cos everyone tells me I've got a big mouth, and I don't stop talking [laughs] .

Tom:

So is that how, is that how you met just, just through you striking up a conversation?

Deb:

I'm trying to think exactly [laughs] I think that's what it was, we were both in the same research methods class.

Example C (pattern 1)

It is also possible to add further information to each speaker like their gender, age group, educational level etc. This way, also this information will be automatically coded.

Alex: male: age group 1: high school:

I don't know, I'm the sort, I don't really struggle to make friends cos everyone tells me I've got a big mouth, and I don't stop talking [laughs]

Tom: male: age group 2: high school:

So is that how, is that how you met just, just through you striking up a conversation?

Deb: female: age group 2: some college:

I'm trying to think exactly [laughs] I think that's what it was, we were both in the same research methods class.

Example D (pattern 2)

@Alex: I don't know, I'm the sort, I don't really struggle to make friends cos everyone tells me I've got a big mouth, and I don't stop talking [laughs].

@Tom: So is that how, is that how you met just, just through you striking up a conversation?

@Deb: I'm trying to think exactly [laughs] I think that's what it was, we were both in the same research methods class.

If your data is not transcribed yet, we recommend using pattern 2 as it is unlikely this pattern will find sections that are not speaker units.

Recommendation

For readability, you may want to consider starting each speaker unit on a new line.

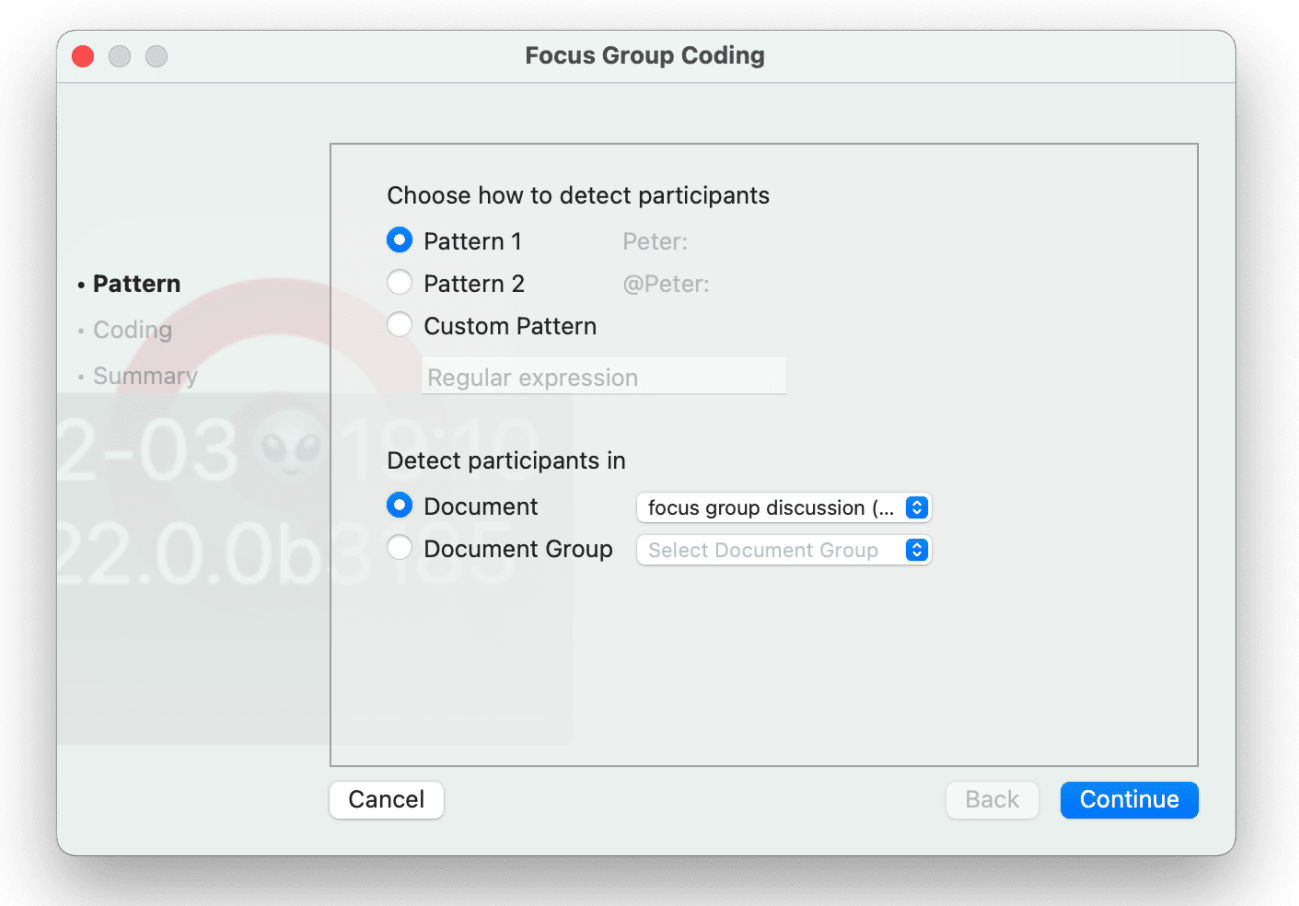
Additionally, you may want to enter an empty line between speaker units.

Both is not required. When a pattern is recognized the chosen code(s) are applied from the first letter of the pattern to the start of the next recognized pattern. Therefore, it does not matter whether a new unit starts on a new line or whether there is an empty line in between.

Auto Coding Focus Group Speakers

Focus group auto coding requires text documents in doc, docx, rtf, or txt format. You cannot use PDF documents with this function.

Select a focus group transcript in the Project Explorer or Document Manager. From the main menu, select **Code > Focus Group Coding.** Alternative, right-click on a document and select *Focus Group Coding* from the contextual menu.
inst
Next, select a pattern for recognizing speaker units. See Preparing Focus Group Data.



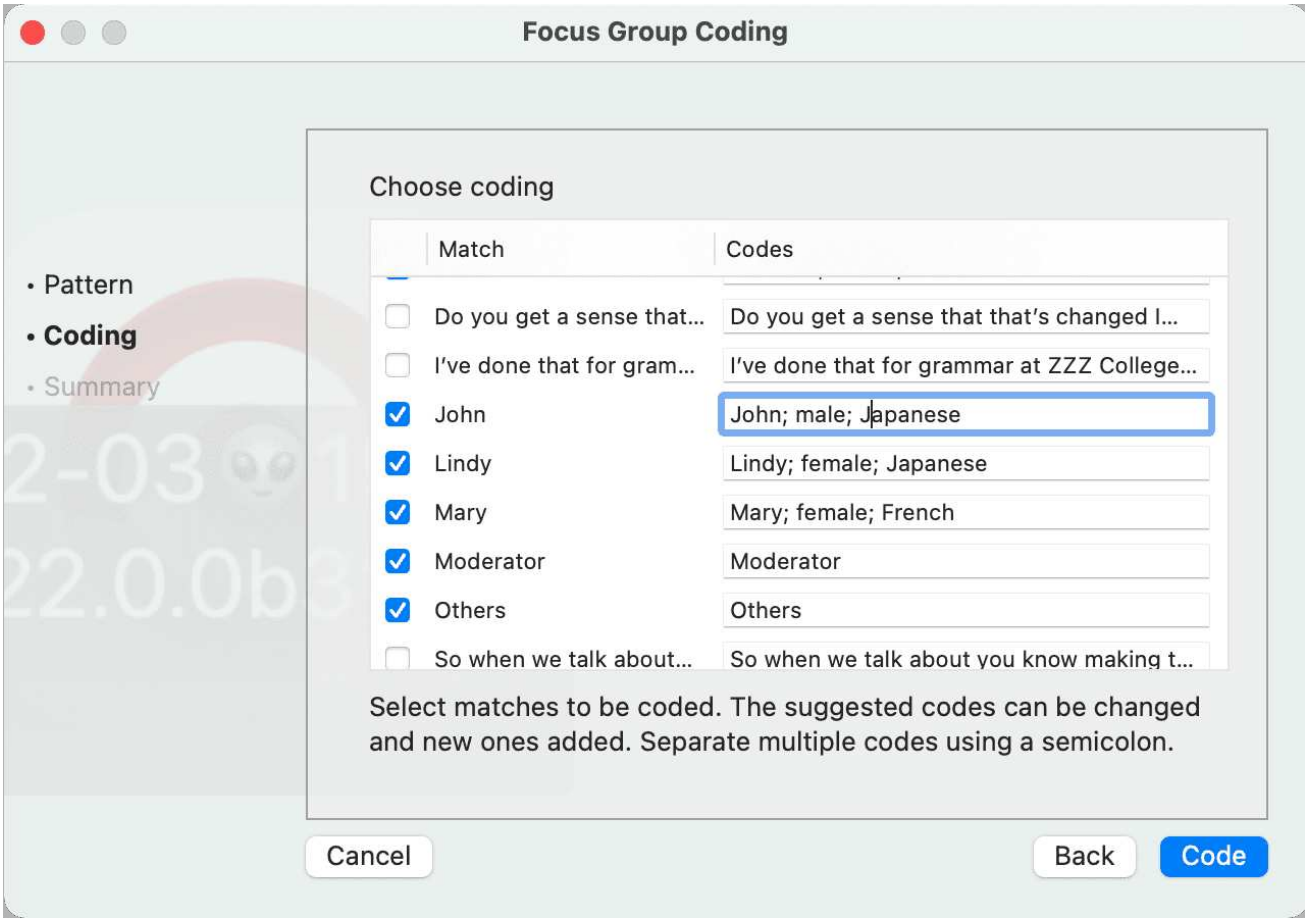
After selecting a pattern, click **Continue**.

ATLAS.ti lists all strings that fit the selected pattern and uses these as code name. If a colon (:) was used also elsewhere in the transcripts, not all finds are speakers.

Deselect all finds that are not speakers, if any.

Check the suggested codes and modify the names if desired.

> Add additional codes, if you want to code the speaker units with multiple codes. Each code needs to by separated by a semicolon.



If you enter codes that already exist in your code list, they will not be duplicated.

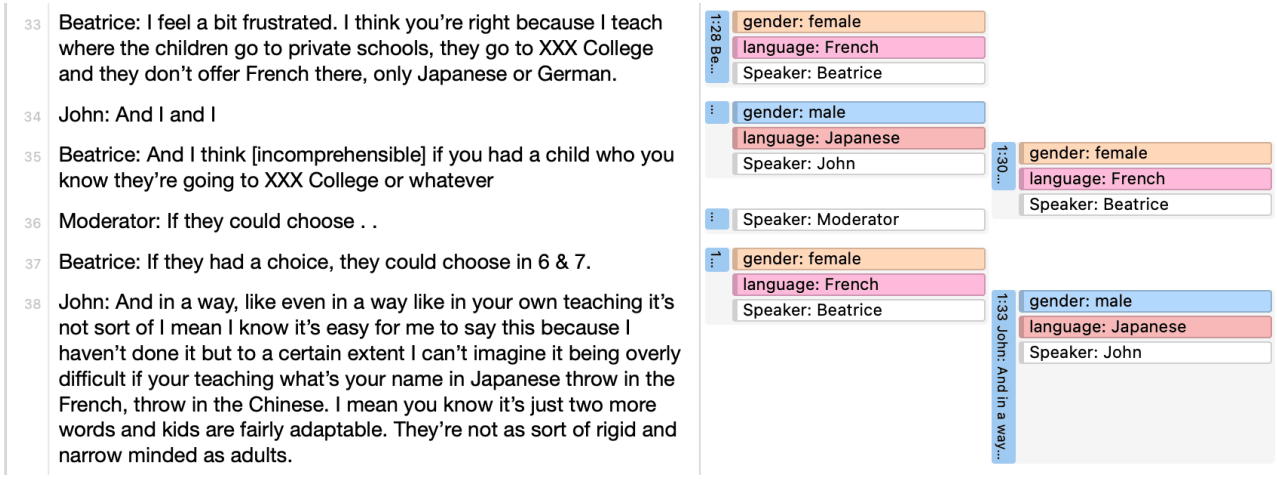
> Click on the button **Code**.

ATLAS.ti codes all speaker units. Once it is done, you see a summary screen.

> Double-check the results in context and take a look at the Code Manager. ATLAS.ti also creates a code group from all codes. If the results are not what you expected, you can undo all coding at this stage.

ATLAS.ti does not yet organize the focus group into a hierarchical structure by default. We however suggest that you do it manually, similar to the example shown below:

As coding all speakers often result in dense coding, we recommend using this function **after** you have coded the focus group transcript for content.



Multimedia Data (Audio & Video)

When we refer to multimedia data, we mean audio and video files. The difference in terms of displaying auto or video files is that there is no picture when working with audio files; the mouse clicks in handling audio files are the same. Therefore, below we describe all steps for both file formats together. For illustration purposes, most figures show video data.

Adding Multimedia Documents to a Project

As multimedia files, especially video files can be quite sizable, it is recommended to link multimedia files to a project rather than to import them.

> To link audio or video files to a project, select **Document** > **Reference External Multimedia Document** from the main menu.

Linked documents remain at their original location and ATLAS.ti accesses them from there. Preferably, these files should not be moved to a different location. If the files need to be moved, you need to re-link the files to your project. ATLAS.ti will alert you, if there is an issue, and a file can no longer be accessed.

Display of Multimedia Documents

Audio wave: On the right-hand side the audio wave is displayed.

Preview images: For video files, preview images are displayed in the full preview below the video, and in the margin area. To see them, hoover with the mouse over the vertical or horizontal audio wave.

Playhead: The playhead in form of a red line shows the current position in the video or audio file.

Zoom: As the space from top to bottom of your computer screen will be too small in most cases to meaningfully display your audio or video file, especially if it is coded, you can zoom the file using the standard techniques Option-Command-Plus Sign (+), Option-Command-Plus Sign (-), or on the mouse pad pinch with two fingers to zoom in or out.

Media Controls

To start and stop the audio or video, press the space bar.

Multimedia Toolbar

Playback Rate: If you want the video to play faster or slower, you can select a playback rate between 0,25 times the original speed to 10 times the original speed.

Mark Start Position of Quotation: Sets the start position for a quotation. The short-cut key is , (comma). See Working with Multimedia Files.

Create Quotation: Sets the end position for a quotation and creates a quotation at the same time. The short-cut key is . (period). See Working with Multimedia Files.

Adding a Video Snapshot

If you want to analyze a particular situation in your video data in more detail, you can create a snapshot from it. The snapshot will be added as new image document to your project.

> Load a video document and move to the desired position in the video. Click on the **Snapshot** button in the toolbar.

Handling Multimedia Data

Zooming the Timeline

> You can zoom the file using the standard techniques **cmd and (+)** for zooming out, **cmd and (-)** for zooming in; or on the mouse pad pinch with two fingers to zoom in or out.

Use Arrow Keys to Navigate

- Use the **right and left arrow keys** to move the position of the play-head by 1/1000th increments of the length of the audio / video document.
- Use the **up and down arrow keys + cmd** to move the position of the play-head by 1/20th increments of the length of the audio / video document.
- Click **cmd + the left arrow key** to play the audio / video backwards.
- Click **cmd + the right arrow key** to play the audio / video at double speed.

Keyboard Shortcuts

Action	Keyboard Shortcut
Pause Play	Space
Small Step Forward	Right arrow key
Large Step Forward	cmd + down arrow key
Large Step Back	cmd + up arrow key
PlaybackRate Up	cmd + right arrow key
Play backwards	cmd + left arrow key
Zoom out	cmd + (+)
Zoom out	cmd + (-)

Working with Multimedia Data

In this section, the following options are discussed:

- Creating multimedia quotations
- Creating multimedia quotations while listening to the audio file or viewing the video file
- Display of multimedia quotations
- Coding multimedia quotations
- Activating and playing multimedia quotations
- Adjusting the size of multimedia quotations
- Renaming a multimedia quotation
- Capturing video snapshots as image documents for further analysis

Creating Multimedia Quotations

You can also immediately code multimedia files. However, as especially video files contain so much more information as compared to text, it is often easier to first go through and segment the audio or video file, i.e. creating quotations before coding.

> To create an audio or video quotation, move your mouse pointer on top of the audio waveform and mark a section by clicking on the left mouse button where you want it to start. Then drag the cursor to the end position. The times of the end and start positions are shown, as well as the total length of the segment.

As soon as you let go of the mouse, a quotation is created, and you see the blue quotation boundary in the margin area

Creating Multimedia Quotations while Listening / Watching

> You can also create an audio or video quotation while listening to or viewing a document. For this, you can use the buttons **Mark Quotation Start** and **Create Quotation** buttons in the toolbar above the timeline; or the short-cut keys (see below).
> inst
> Continue with listening or watching, and setting quotations.

Using Short

To mark the start position: use (<) or (,)

To create a quotation: use (>) or (.)

Which short-cut key to use depends on your keyboard. Use those keys where you do not have to use Shift.

> Play the video. If you find something interesting you want to mark as a quotation, click on the (,) or the (<) key. This sets the start position.

> To set the end position and create a quotation, click on the (.) or (>) key.

- A new quotation will be listed in the Quotation Manager, the Project Explorer or Quotation Browser. The quotation ID consists of the number of the document plus a consecutive count in chronological order by time when a quotation was created in the document. The quotation ID 15:5 for examples means that this is a quotation in document 15, and it was the 5th quotation that was created in the document.
- After the ID you see the quotation reference, which is the start position of the audio or video quotation. The name field is empty. You can for instance add a short title for each multimedia quotation, see below.
- Depending on the media type, the quotation icon changes.

Audio and video quotations can be easily recognized by their special icon.

Coding Multimedia Quotations

Coding multimedia quotations is not different from coding text or image documents:

> Right-click the quotation and select **Apply Codes.** For further information see: Coding Data.

Activating and Playing Multimedia Quotations

In the Margin Area

> To play the quotation, double-click on the quotation bar, or hoover over the audio waveform with the mouse and click on the **play** icon.

You can move the play-head to any position within an audio or video file by scrolling.

From other Places

- When you double-click on a multimedia quotation in the Project Explorer, the Quotations Browser or the Quotation Manager, the multimedia document opens at the position where the quotation starts. Click on the space bar to play it.
- You can preview a multimedia quotation in the preview area of the Quotation Manager or the Quotation Reader.
- You can preview a multimedia quotation in a network.
- You can preview a multimedia quotation if it is part of a hyperlink. See Working with Hyperlinks.

Adjusting the Size of Multimedia Quotations

> To adjust or change the length of the quotation, drag the start or end position to the desired position.

Renaming a Multimedia Quotation

If you add names to multimedia quotation, they can serve as titles. Short summaries can be added to the quotation comment. This allows you to create a meaningful text output for audio and video segments.

> Select a multimedia quotation and add a name in the inspector.
> Use the comment area to add further information, e.g. describe the segment and offer a first interpretation

See also Making Use of Quotation Name and Comment for Analytical Purposes.

Capturing Snapshots of Video Frames as Image Documents

If you want to analyze particular frames of your video in more detail, you can capture a snapshot.

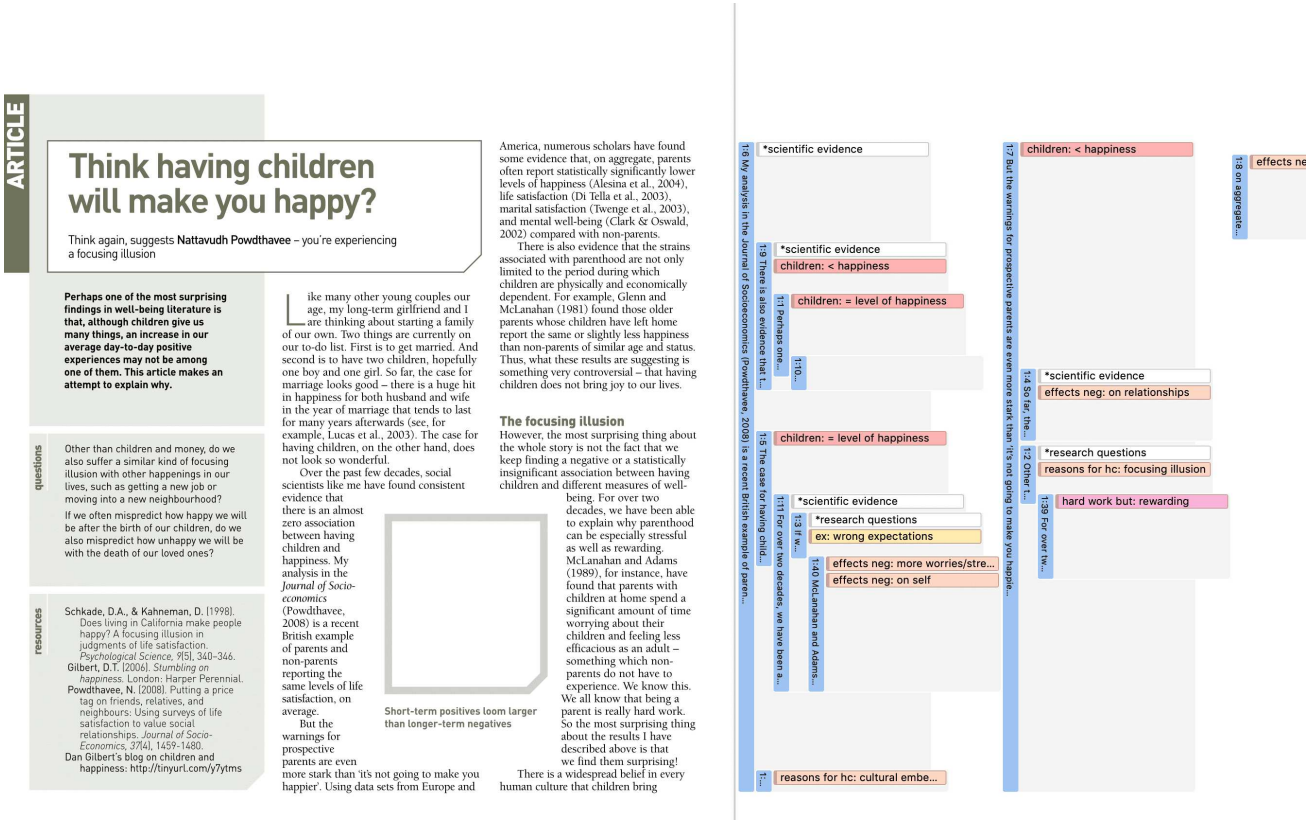
> Move the play head to the desired position in the video.

> Click on the **camera** icon in the toolbar.
> The snapshot is automatically added as a new image document to your project. See Creating Quotations im Images for further information on how to work with image files.

The Margin Area

The margin area in ATLAS.ti is an important working space. It is not only used to display entities linked to your data like codes, memos, hyperlinks, groups or networks; it is also a space where you can interact with your data, write and review comments, link and un-link codes, move codes around, replace codes, traverse hyperlinks, and the like.

Depending on the current activity, you can set various display options.



Margin Drag & Drop

All objects populating the margin area support drag & drop. The effect of a drag & drop operation depends on the entities that are involved as drag sources (those that are dragged) and targets (those onto which entities are dropped).

A large variety of entities from the margin area can be dropped into the margin area.

Furthermore, entities can also be dragged from other entity managers and browsers. Entities can be dragged from the margin into other windows, browsers or even other applications like Word. In the latter case, the ATLAS.ti entity lose their ATLAS.ti specific "objectiveness" but at least they render into something useful, e.g., a formatted title and rich text comment.

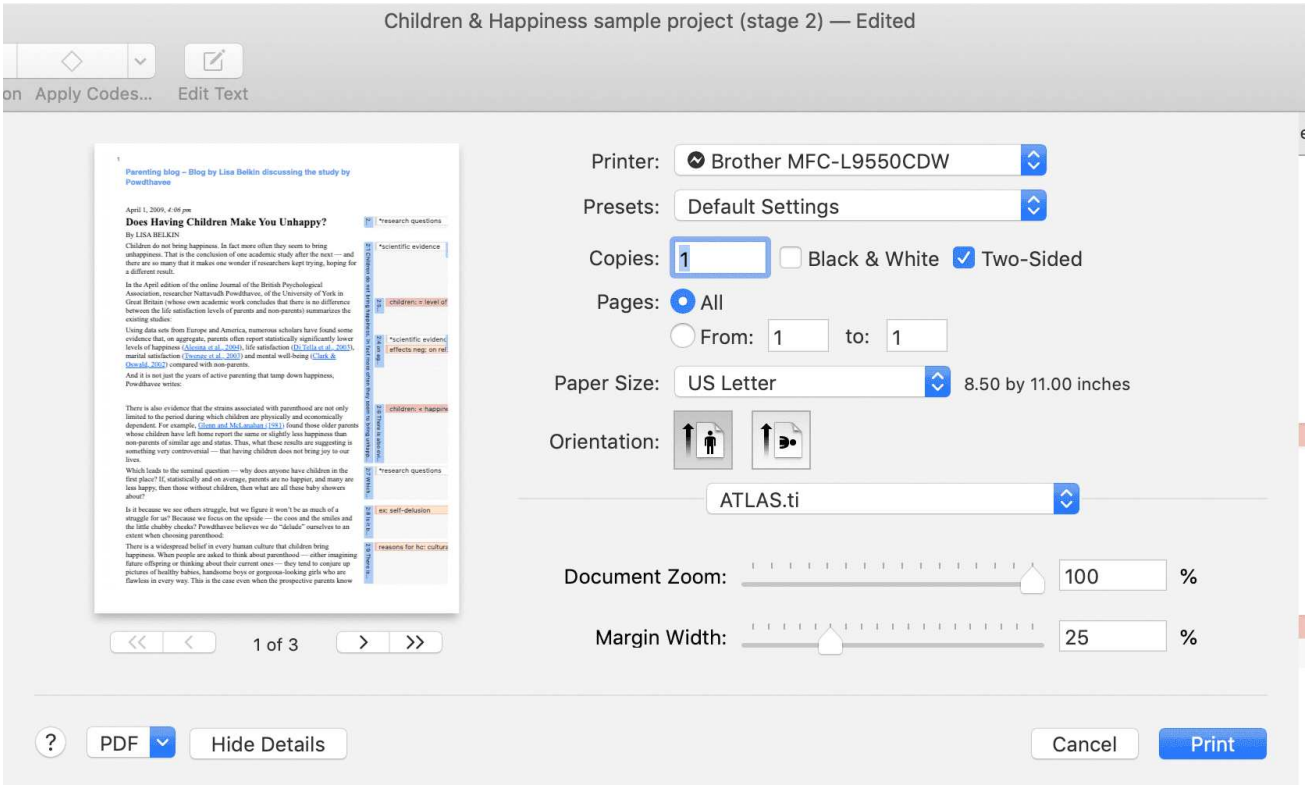
- **Dragging and dropping codes:** When you drag a code from a code list or the margin area and drop in onto another code in the margin area, you have the choice to either replace or to merge it.
- **Dragging and dropping quotations:** When you drag-and drop a quotation onto another quotation, you can either link the quotations (see Creating Hyperlinks), or merge them.
- **Dragging and dropping memos:** When you drag-and drop a memo onto a quotation, code or another memo, you link the memo to the respective entity.

Print with Margin

You can print the document as you see it on your screen with paragraph numbering and margin area.

> Load the document and select **Project** > **Print**. You can select the paper size, orientation and the margin width. When you change the settings, you can see how the document will look like in the preview.

> You can either save the output in PDF format or print it.



Memos and Comments

Video Tutorial: Using memos at project begin.

Memos

> *"Memos and diagrams are more than just repositories of thoughts. They are working and living documents. When an analyst sits down to write a memo or do a diagram, a certain degree of analysis occurs. The very act of writing memos and doing diagrams forces the analyst to think about the data. And it is in thinking that analysis occurs"* (Corbin & Strauss: 118).

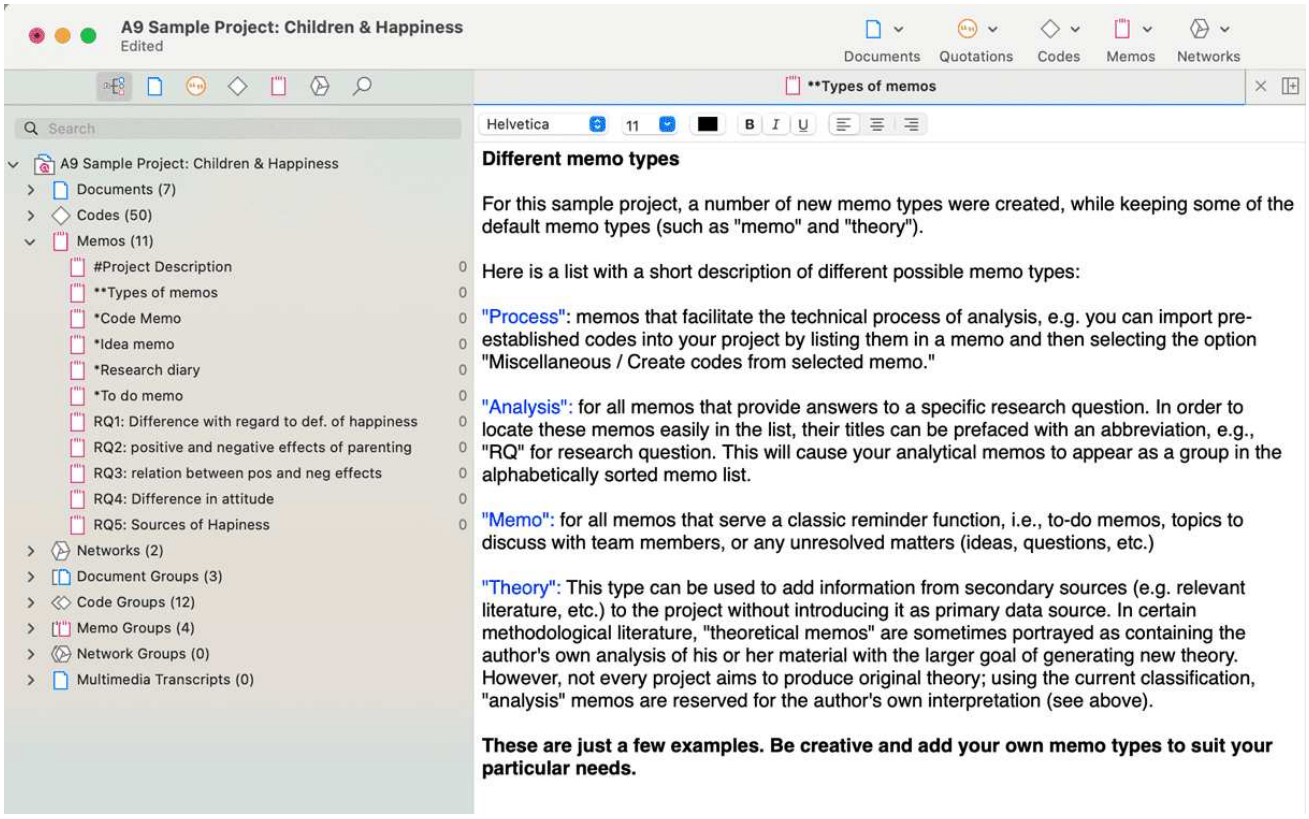
> *"Writing is thinking. It is natural to believe that you need to be clear in your mind what you are trying to express first before you can write it down. However, most of the time, the opposite is true. You may think you have a clear idea, but it is only when you write it down that you can be certain that you do (or sadly, sometimes, that you do not)"* (Gibbs, 2005).

As you see from the above quotes, memos is an important task in every phase of the qualitative analysis process. Much of the analysis 'happens' when you write down your findings, not by clicking buttons in the software.

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 involves writing memos.

Memos in ATLAS.ti can be just a text on its own, or can be linked to other entities like quotations, codes, or other memos.



Typical Usage of Memos

- Memos can contain a **project description**
- You can list all **research questions** in a memo.
- You can use memos to write a **research diary**.
- You can use one memo as **to do list**.
- Memos can be used as a **bulletin board** to exchange information between team members.
- You can store definitions, findings or theories from relevant **literature** in one or more memos.
- You can write up your **analysis** using memos. Those memos will be the building blocks for your research report.

Memos can also be assigned as documents, if you want to code them. See Using Memos as Document .

Memos and Comments

From a methodological point of view comments are also memos in the sense that comments are also places for thinking and writing.

In technical terms, in ATLAS.ti there is a distinction between comments and memos, as comments exclusively belong to one entity. For example, the document comment is part of the document; a code comment belongs to a particular code and is usually a definition for this code. A quotation comment contains notes or interpretations about the quotation it belongs to.

Comments are not displayed in browsers separately from the entity to which they are attached.

ATLAS.ti memos in comparison

- can be freestanding, or they can be linked to other entities.
- You can write a comment for a memo, for example: use this memo for section 2 in chapter 4 in my thesis.

Typical Usage of Comments

Below some ideas are listed for what you can use comments:

Project comment

- project description

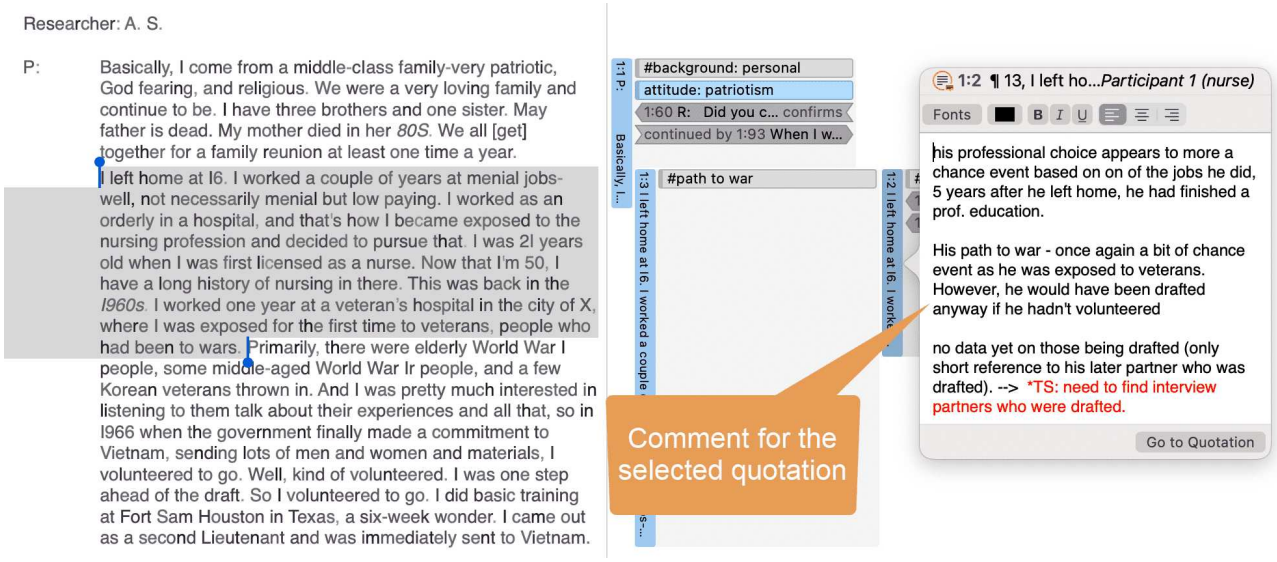
Document comment

- Meta information about a document: source, where and how you found or generated it
- Interview protocols

> Information about a respondent like gender, age, profession etc., are best handled by document groups. There is no need to write this type of information into the comment field.

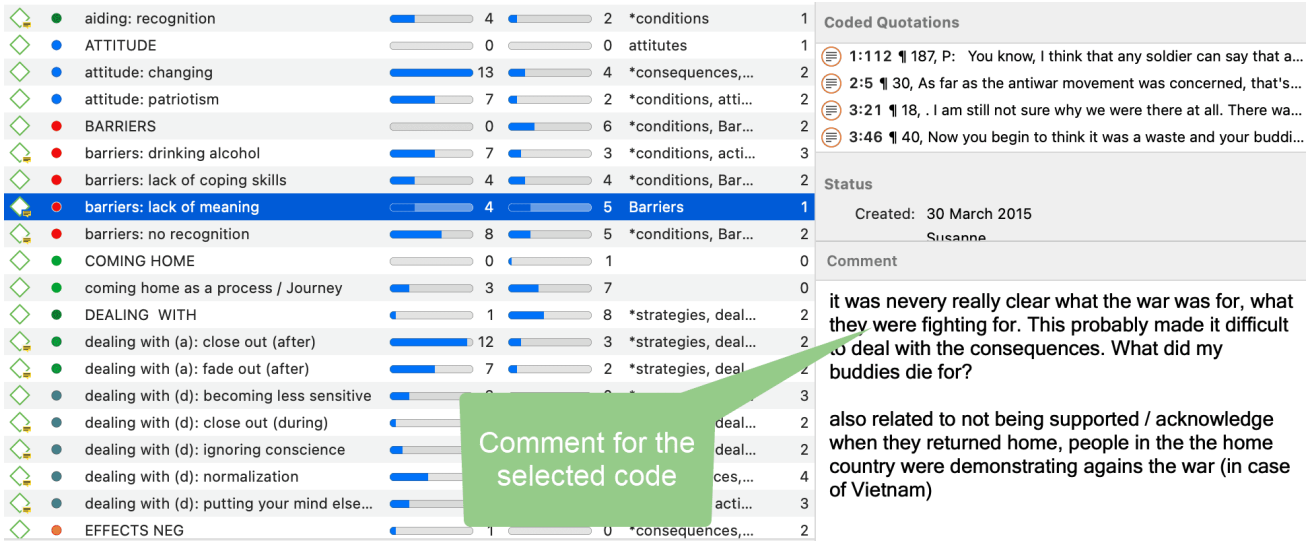
Quotation Comment

- interpretations that only concern a specific data segment
- ideas how a quotation might be related to another quotation
- summaries for what you hear or see in the multimedia quotation
- interpretations of image quotations
- notes on a geo position



Code Comment

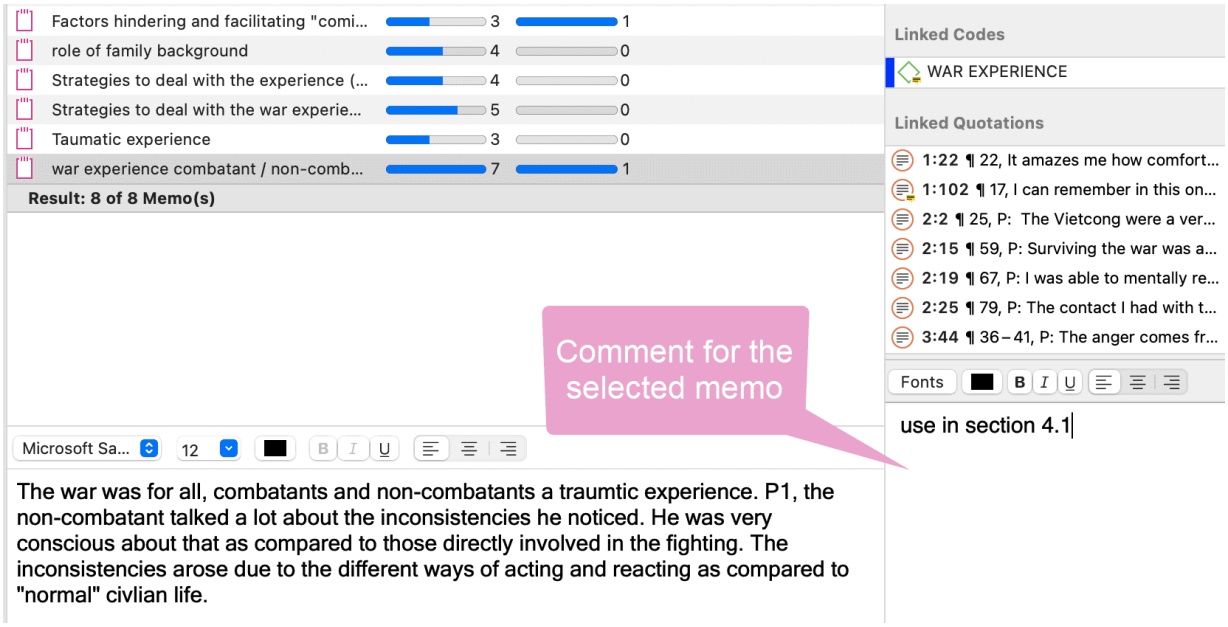
- first ideas what you mean by a code
- a code definition
- a coding rule, especially when working in a team
- an example of what kind of data can be coded with this code
- summary of coded segments



Memo Comment

- note to yourself where you want to use the memo in a report
- comments from supervisors or team members

- links to or notes about relevant literature

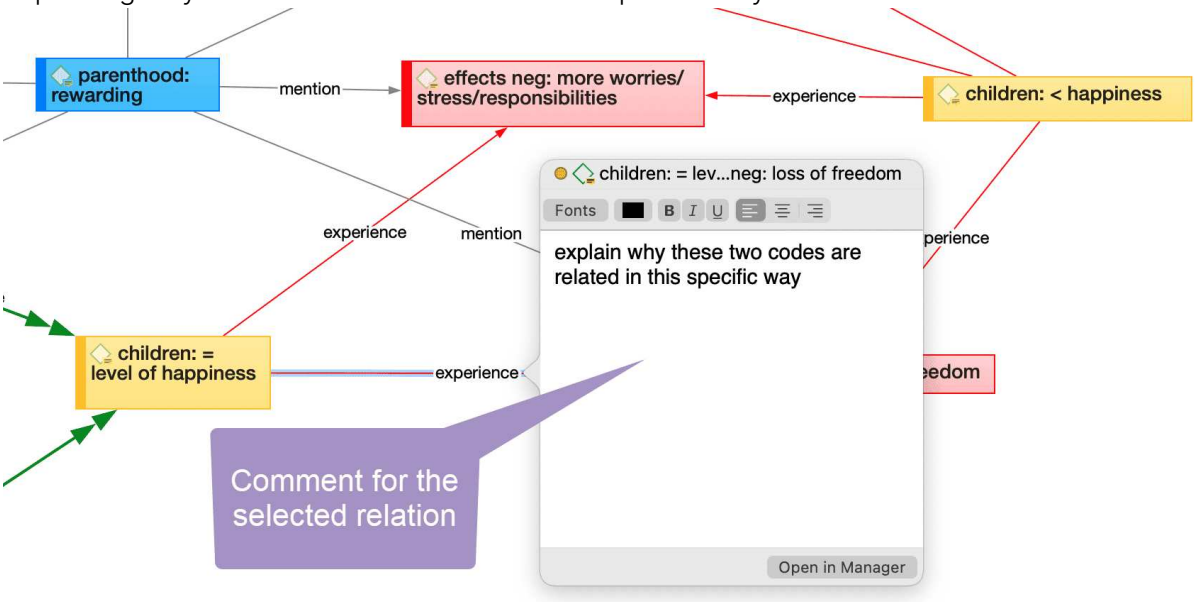


Network Comment

- description of the network
- idea how you want to develop it further

Link Comment

- Explaining why the two entities are linked in a specific way.



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 a code label, consider making use of the quotation name or comment. See Working with Quotations, or write more extensive thoughts about a code as code comment.

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 confuse the name with its content! The purpose is to fill the memo with content, which is a longer text that goes beyond just describing the memo title. If all what you want to write in the memo fits into the title, use a quotation comment instead.

References

Corbin, Juliet and Strauss, Anselm (2008). Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory (3rd and 4th ed.). Thousand Oaks, CA: Sage.

Gibbs, Graham (2005). Writing as analysis. Online QDA.

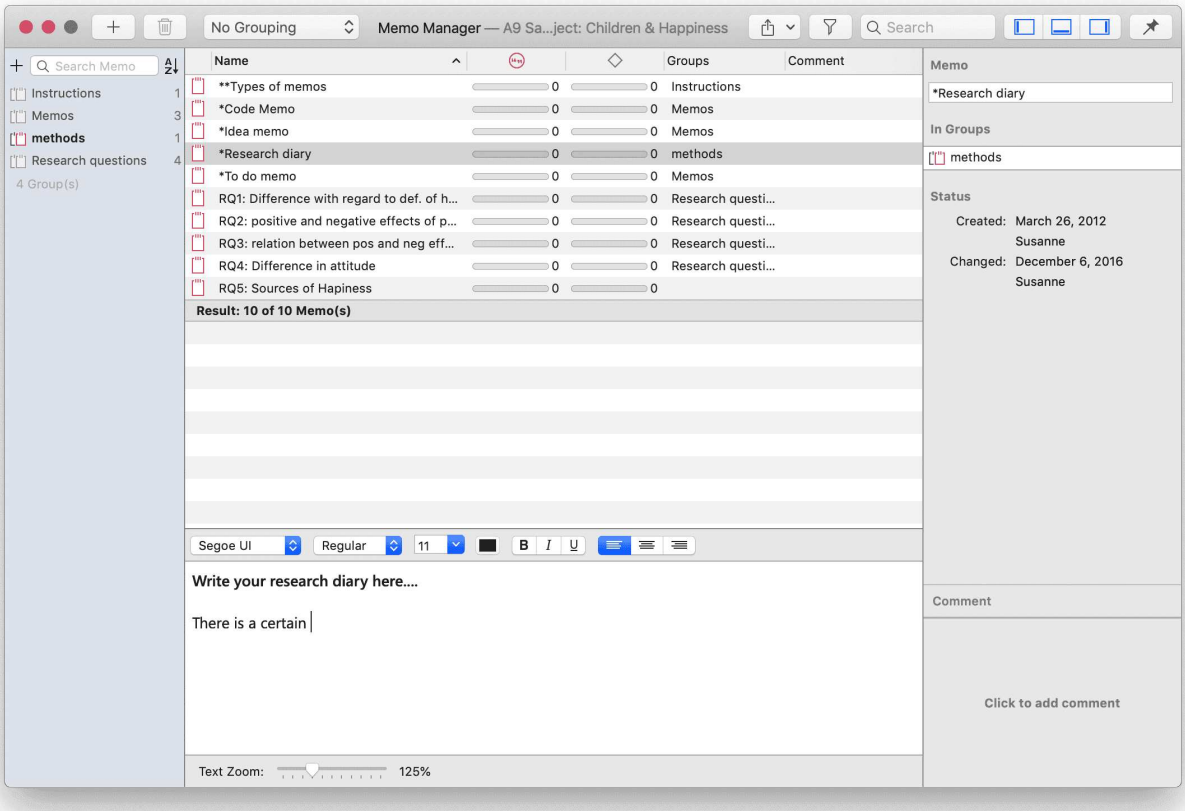
Working with Comments and Memos

Writing a Comment

You find a field for writing comments in every Entity Manager.

> To write a comment, select an item and type something in to the comment field in the inspector. As soon as you select another item, the comment is automatically saved.
> All items that have a comment display a yellow post-it within their icon.

Alternatively, you can right-click on any entity and select the **Edit Comment** option from the context menu and write a comment for the selected entity.



Creating Memos

Memos can be created from the *toolbar*, or in the *Memo Manager*.

To create a memo from the **toolbar**:

> Click the drop-down menu for **Memos** and select **New Memo**. A new memo opens immediately, and you can change the default name in the inspector.

To create a memo in the **Memo Manager**

> From the main menu select **Memo** > **Show Memo Manager**.
> inst
> In the Memo Manager, click on the **plus**. A new memo is created in the list, and you can enter a title. You can begin to write your memo in the editor in the lower part of the Memo Manager.

Opening an Exis

You can access memos from everywhere: the Project Explorer, the Memo Manager, in the margin area if you linked a memo to a quotation, or from within a network.

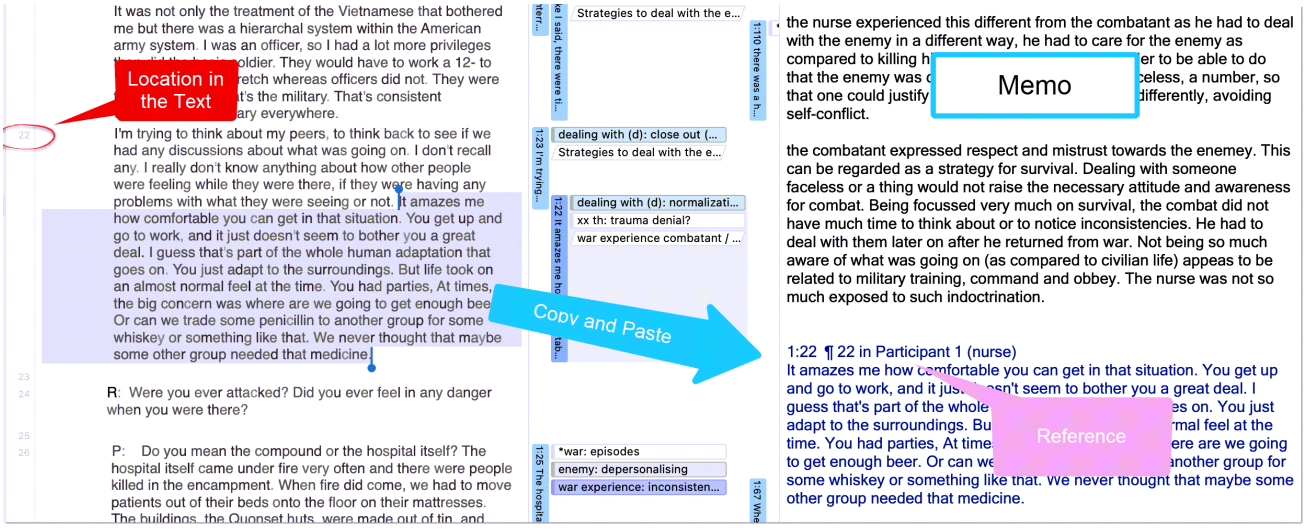
> If you want to review or continue to work on a memo, just double-click the memo. In the Memo Manager, you can select a memo with a single click and review and edit it in the lower part of the manager window.

Adding a Quotation to a Memo

You can copy and paste quotations into a memo. This is for example useful if you want to include key quotes in your report.

> Select a quotation, right-click and select **Copy** from the context menu, ir the short-cut cmd+c.

> Paste the quotation in the memo editor, either using the short-cut cmd+v, or the context menu option. The quotation will be pasted into the memo including its reference, i.e., document name and location within in the document.



You can also copy and paste a quotation including its reference into any text editor, also outside of ATLAS.ti.

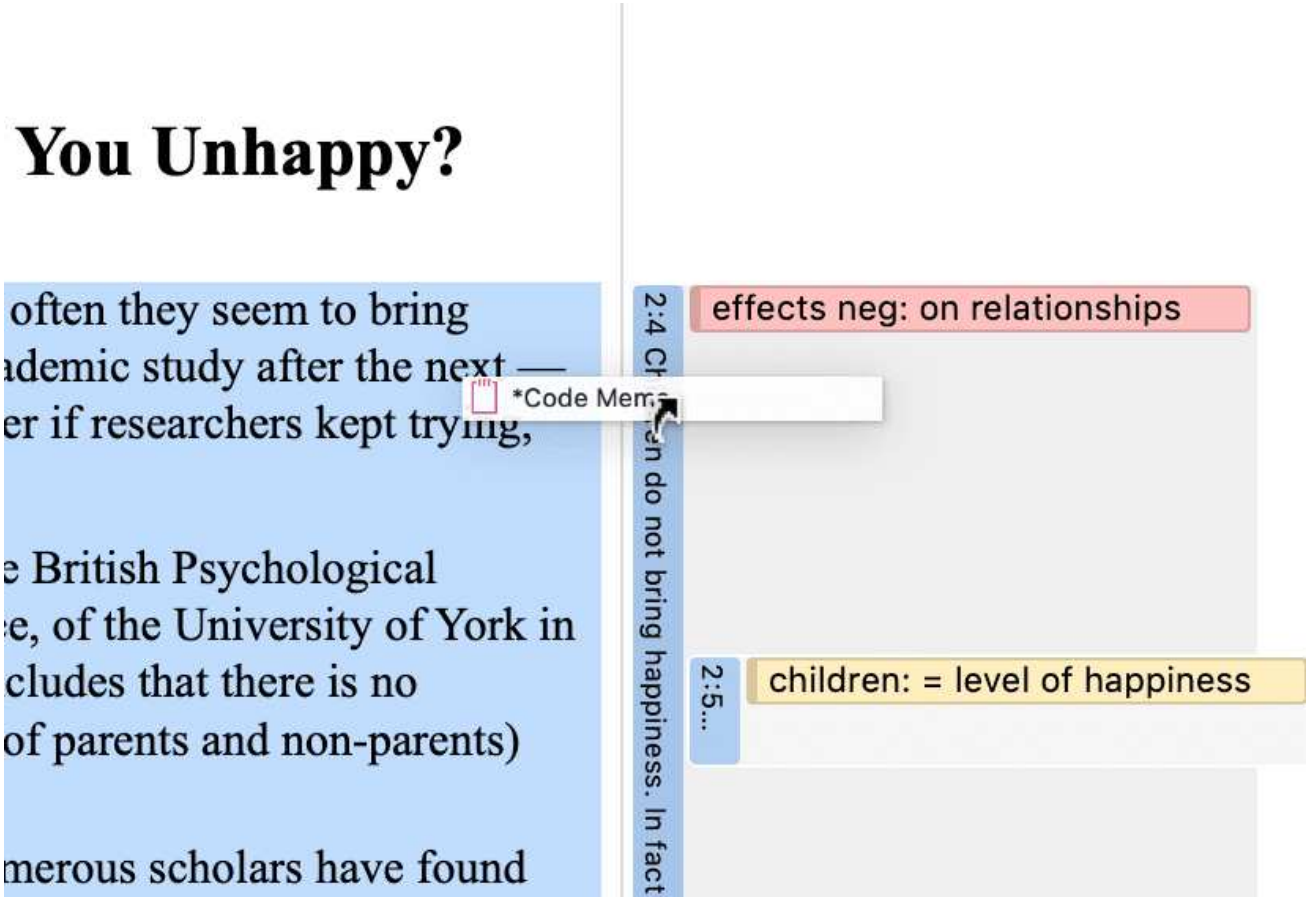
Link

Memos can be linked to quotations, codes and other memos. You can link memos per drag & drop basically anywhere in the program, or visually in networks. See Linking Nodes. Below a few examples are given.

Linking Memos to Quotations

The following options are available:

- Drag & Drop a memo from the Project Explorer or Memo Manager onto a highlighted quotation, or on a quotation in the **margin area**. You can also drag the quotation to the memo.
- Drag & Drop a memo from the Project Explorer or Memo Manager to a quotation in a **result list** (or vice versa). This can be a result list in the query tool, the Code Document Table, Code Co-occurrence Table, or results from a project search.
- Drag & Drop a memo from the Project Explorer or the Memo Manager to a quotation in the **Quotation Manager** (or vice versa).
- Link a memo to a quotation (or vice versa) in a **network**. See Linking Nodes.



Reviewing Quotations Linked to a Memo

> To review all quotations linked to a memo, right-click and select **Open Quotations**. This opens the Quotation Reader.
> You can also see the quotations linked to a memo in the inspector, or by opening the memo subtree in the Project Explorer.

Linking Memos

The following options are available:

- Drag & Drop a memo from the Project Explorer or Memo Manager onto a code in the **margin area**. You can also drag a code to the memo.
- Drag & Drop a memo from **the memo branch** in the Project Explorer or the Memo Manager to **the code branch** in the Project Explorer (or vice versa).
- Drag & Drop a memo from the **Memo Manager** to a code in the **Code Manager** (or vice versa).
- Link a memo to a code (or vice versa) in a **network**. See Linking Nodes.

Linking Memos to Memos

The following options are available:

- Drag & Drop a memo to another memo in the **margin area.**
- Drag & Drop a memo to another memo in the memo branch of the **Project Explorer**.
- Drag & Drop a memo to another memo in the **Memo Manager**.
- Link a memo to a memo in a **network**. See Linking Nodes.

Converting a Memo into a Document

As a lot of the analysis happens while you write memos, in some cases you may wish to convert a memo into a document as secondary data so that you can code it.

> Select a memo in the Project Explorer or the Memo Manager, right-click and select **Convert Memo to Document** from the context menu. If a memo is open, you can also select the main menu option: **Memo > Convert Memo to Document.**

The memo is then added to your list of documents.

You can continue to use the memo as memo. The memo comment is not transferred. It is treated independently of the comment that you may want to write for the memo document.

Hyperlinks

Representing the Rhetoric of Data

A network based on text segments that are linked to each other 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.

As in ATLAS.ti, you cannot only work with text, this also applies to other data sources like images, audio, video or geo data.

Cross-references between text passages are very common also in conventional media like books - just think of religious and juridical texts, literature, journals etc. Footnotes and end notes 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.

This manual for example is a computer-related hypertext application that displays operational information in suitable small chunks (compared to lengthy printed information), but with a considerable amount of linkage to other pieces of information.

Another well-known hypermedia structure is the **World Wide Web** with its textual, graphical and other multimedia information distributed world-wide.

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

What Codes Can't Do

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 onto segments 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 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. After the work of establishing the links, you can make semantically richer retrievals like: "Show statements contrary to statement x." See Manager for Links and Analytic Functions of Networks. A code offers fast access to a set of data segments that are similar, defined by a simple relation between them, namely **equivalence**.

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.

Hyperlinks can express more differentiated relationships between quotations, for example:

- statement A contradicts / supports / refers to statement B.
- Image quotation X in document 7 illustrates what has been said in quotation Y in document 12.

The data segment that you can relate to each other can be from the same or different documents.

Mapping Hyperlinks in Networks

ATLAS.ti incorporates procedures for creating and browsing hypertext structures. It allows for two or more quotations being connected using *named* relations. See About Relations.

Further, you can create graphical maps - using Networks - to make parts of your hyperspace accessible easily.

Hyperlinks may connect quotations (textual, graphical, multimedia) across documents (intertextual links) or may link segments within the same document (intra-textual links). The natural boundary for hyperlinks, like all structures in ATLAS.ti, is the project.

Creating Hyperlinks

A hyperlink is a named linked between two quotations. If, for instance, you notice that one statement in a report or interview is explaining a previous statement in a bit more detail, you can link the two using the relation "explains." Or you may find a contradictory or supporting statement. These are just a few of the default relations that come with the software. If they do not fit what you want to express, you can create user-defined relations in the Relation Manager. See Creating New Relations.

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 editor. See Linking Nodes.

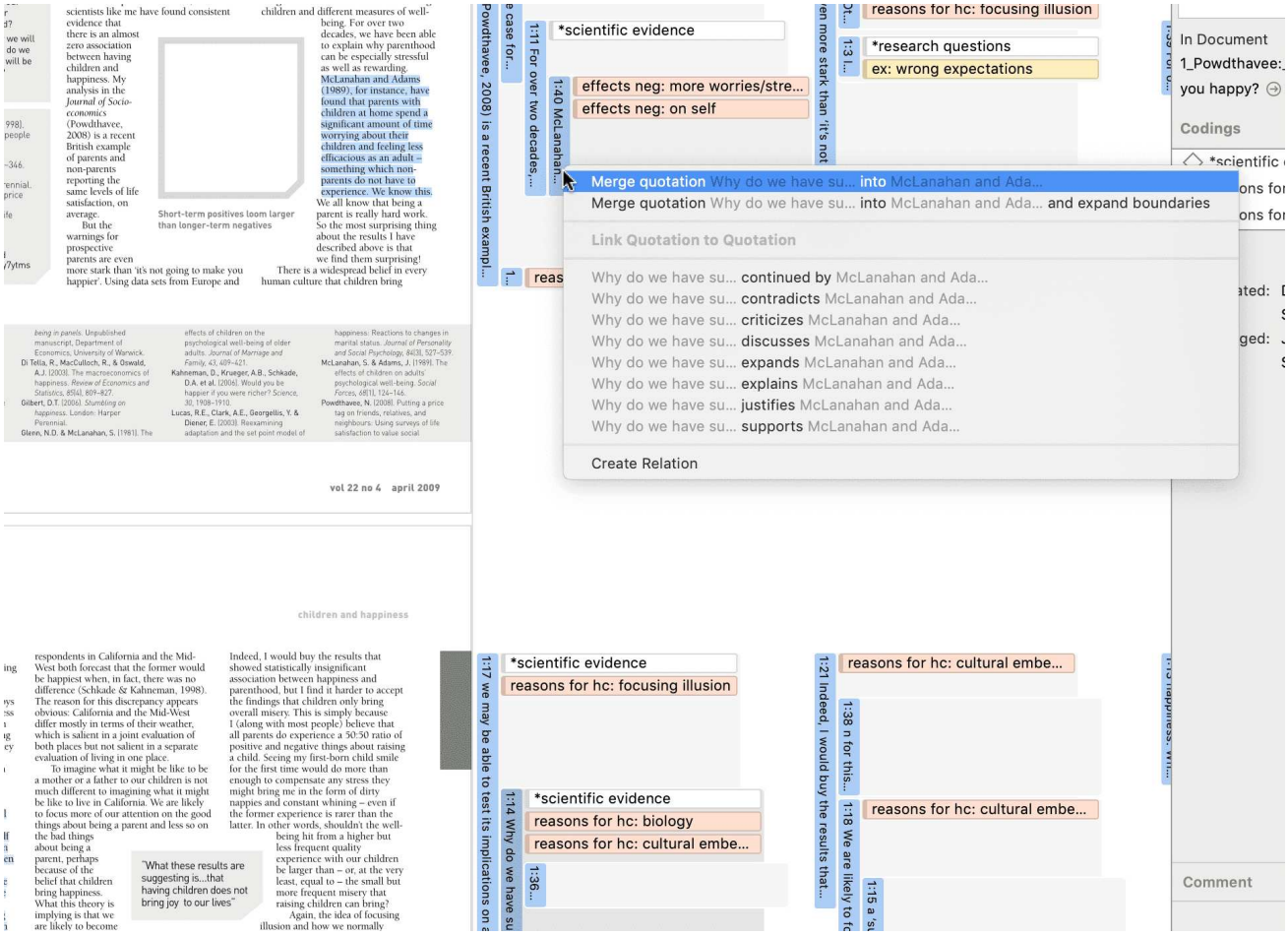
In addition, hypertext links can be created while you work with your documents. How this works is described below.

Creating Hyperlinks in the Margin Area

Creating hyperlinks in the margin area is suitable for connecting two quotations that are close to each other:

> Open a document, select a quotation in the margin and drag it to another quotation.

> A selection menu opens. Under the heading 'Link Quotation to Quotation' you find a number of relations. Select one of the existing relations or click on *Create Relation*. When you selected to create a new relation, enter a name, define a color and its property. . See Defining New Hyperlink Relations.



After creating a hyperlink, you see the following in the margin area: a grey arrow pointing to the right or left, the name of the relation, the quotation ID and the first letters of the quotation name. Source links point to the right, target links to the left.

If you double-click on a hyperlink, the hyperlinked quotation is shown. You have the option to directly jump to the linked quotation by clicking on the option **Go to Quotation**.

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.

Creating Hyperlinks across Documents

This is a good method if you want to create hyperlinks between two documents.

> Load two documents side-by-side. This means you load two documents into different regions. See Working With Tabs and Regions in Software Navigation.

> Left-click a quotation bar in one document and drag it to a quotation bar in the other document, release the left mouse button and select a relation.

Display of Hyperlinks

- In the margin area: In the margin area, hyperlink labels show the quotation icon, the name of the relation, the quotation ID and the first letters of the quotation name. The label is visualized as an arrow. Source links point to the right, target links to the left.
- In the inspector: If a quotation is linked to one or more quotation, you see a section 'Linked Quotations' in the inspector that lists all hyperlinks.

Working with Hyperlinks

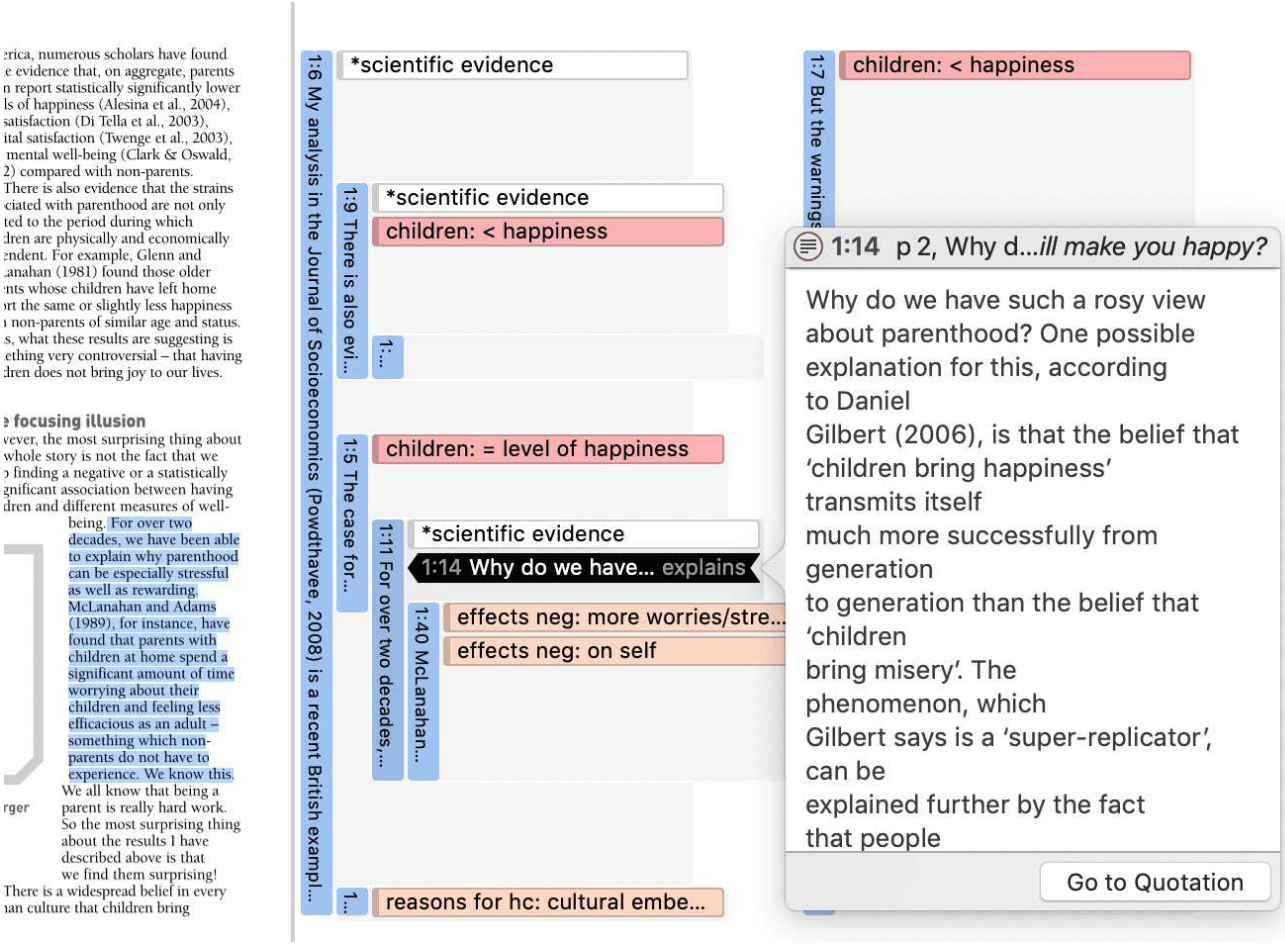
Traversing Hyperlinks

Traversing hyperlinks means you view or jump to the linked quotations. To do so:

> Double-click on a hyperlink.

A window pops showing you the content of the linked quotation.

> To view the content of the linked quotation, select the option Go to Quotation.



Modifying Hyperlinks

You can modify existing hyperlinks, i.e. cutting a link, flipping (reversing) a link, or changing the relation at various places.

In the Margin Area

In the margin area, you can unlink or change the direction of a hyperlink:

> Right-click on a hyperlink in the margin area and select either the **Unlink**, or the **Flip Link** option from the context menu.

In the Hyperlin

In the Hyperlink Manager, you can unlink or change the direction of a hyperlink, or change the relation.

> To open the Hyperlink Manager, select **Quotation** > **Show Link Manager** from the main menu.

> To modify a hyperlink, select it, right-click and chose one of the following options: **Flip Link**, **Change Relation**, or **Unlink** from the context menu.

Modifying Hyperlinks in the Netwo

> Right-click on a hyperlink in the margin area, and select **Open Network** from the context menu. See also Ad-hoc networks.

> In the network editor, right-click on a link label and select one of the following options: **Flip Link**, **Change Relation**, or **Unlink** from the context menu.
> For more information see Linking Nodes.

Editing Hyperlink Comments

The links between quotations use fully qualified relations, like the links between codes. As a hyperlink is a "first-class" entity, you can write a dedicated comment for each hyperlink.

Such a comment could explain why quotation **A** has been linked to quotation **B**. Link comments can be accessed, displayed and edited from three locations: the margin area, the Hyperlink Manager and the Network Editor.

The margin area has the advantage that it is readily available during scrolling through the documents.

The network editor method offers a visual approach to accomplishing this goal.

Editing a Hyperlink Comment in the Margin Area

> Select a hyperlink in the margin and write a comment in the inspector: or right-click and select **Edit Comment** from the context menu.

Editing a Hyperlink Comment in the Hyperlin

> Open the Hyperlink Manager (Quotation > Show Link Manager) and select a hyperlink. Edit the comment in the inspector on the right-hand side, or right-click and select **Edit Comment**.

Editing a Hyperlink Comment in

> Open a network on a hyperlink, e.g. right-click and select **Open Network** from the context menu. See also Ad-hoc networks.

> Click on the relation name and write a comment in the inspector, or right-click and select **Edit Comment**.

Creating New Relations for H

New relations can be defined in the Relation Manager. See Creating New Relations. The procedure for defining or editing hyperlink relations is equivalent to defining or editing code-code relations.

Further Data Analysis

ATLAS.ti offers several tools that support you in querying your data:

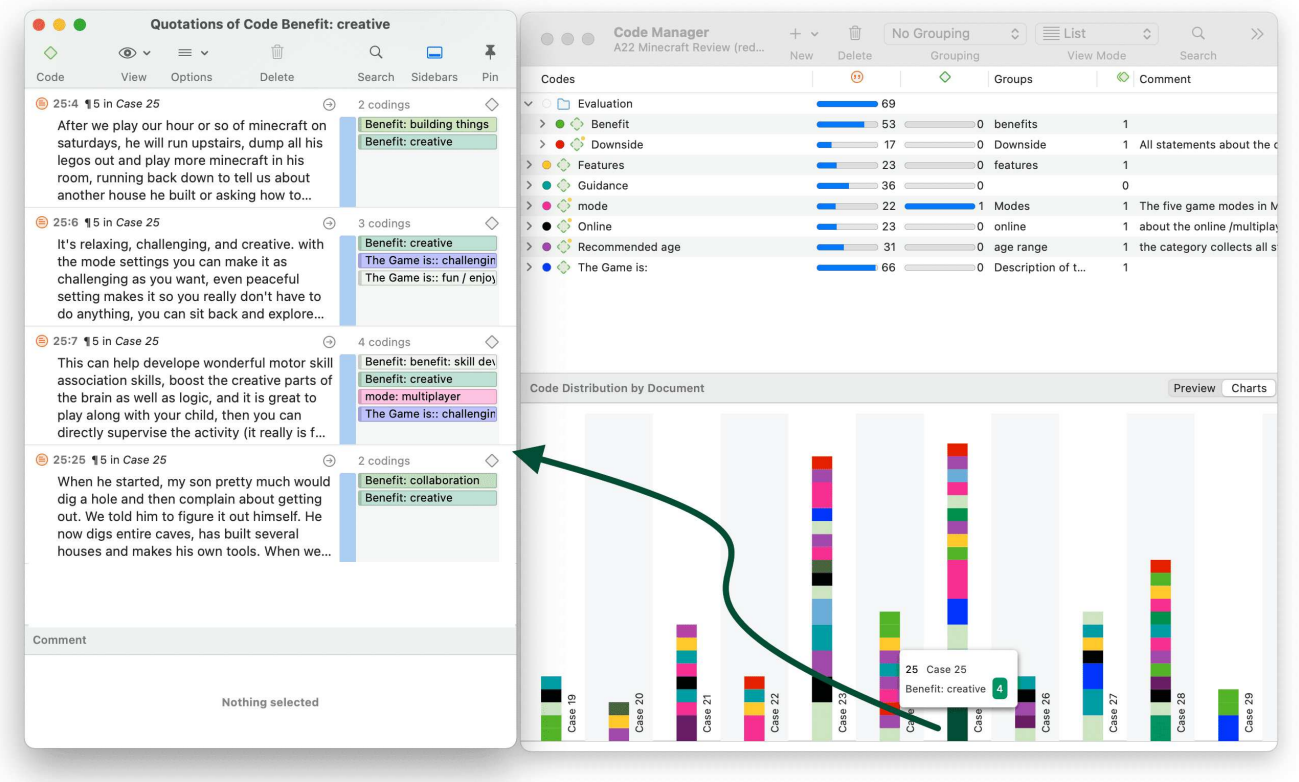
Simple Boolean Retrieval.

See Retrieving Coded Data.

Analysing Code Distributions

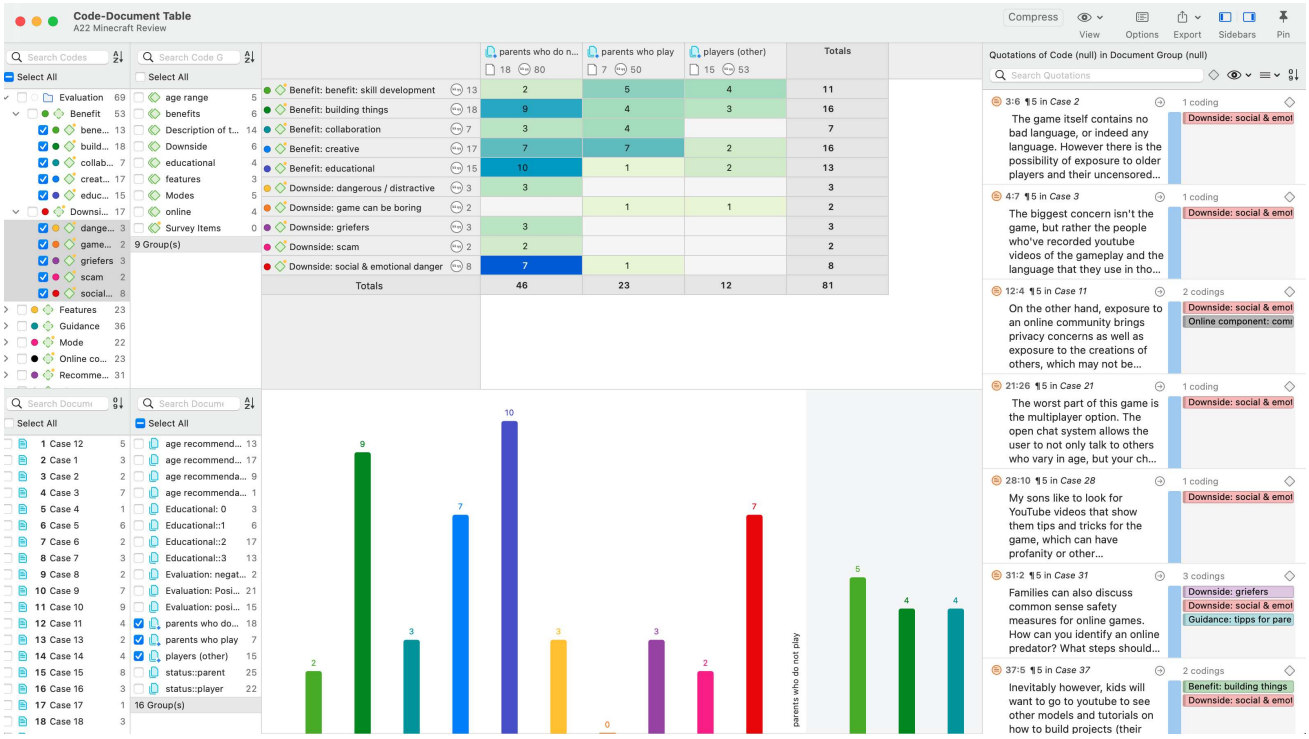
Code distributions are displayed in the Document Manager and in the Code Manager in the form of bar charts. In the document manager you will see a bar for each code. The higher the bar, the more often the code was used. In the Code Manager each bar stands for a document. Within the bar you can see how the codes are distributed in the document.

After you've encoded the data, a look at the code distribution gives you a feel for the data. Which topics were mentioned more or less frequently, by whom, is there a difference between different groups of respondents? How are the topics distributed? For further information see Analysing Code Distributions.



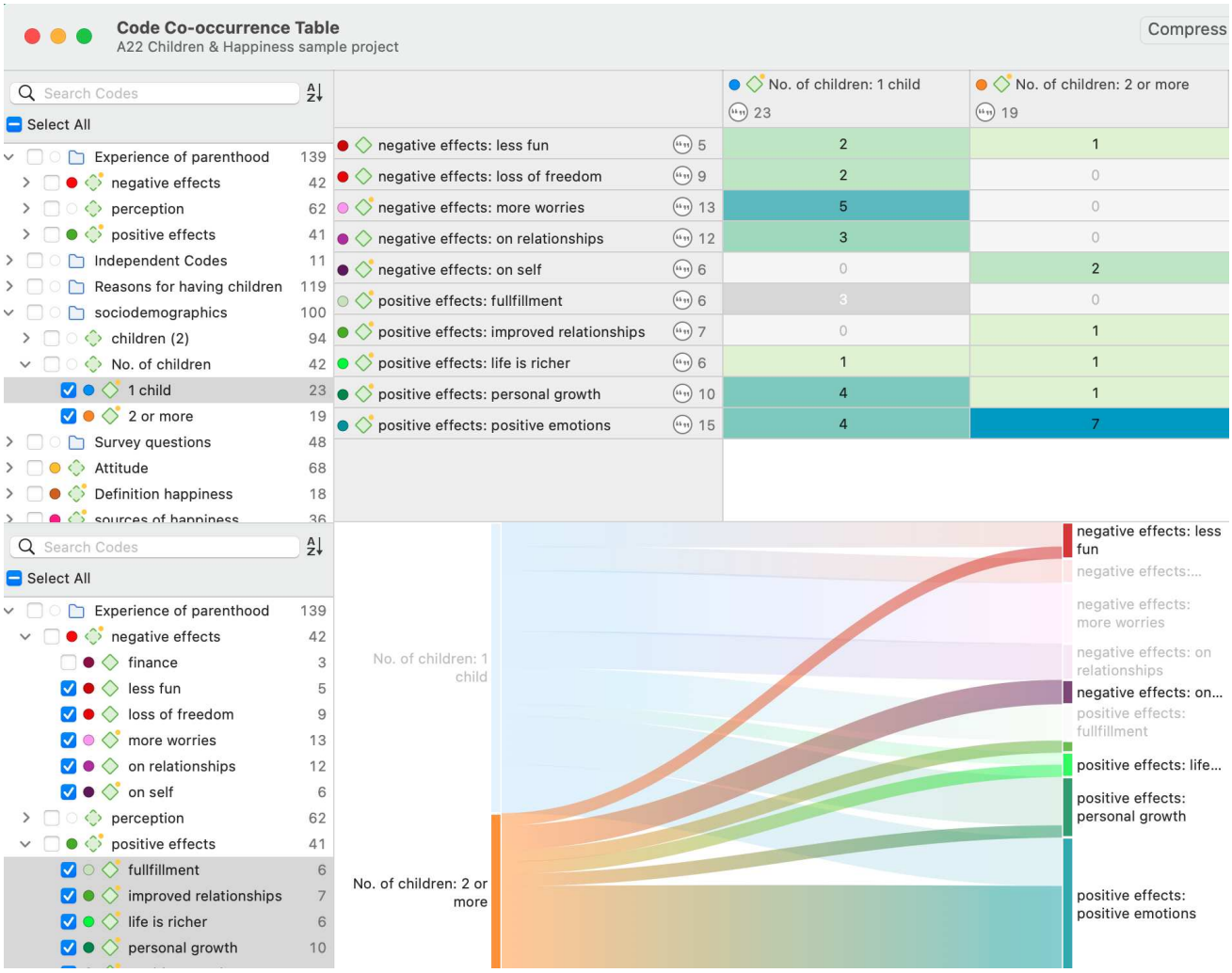
Code-Document Table

The Code Document Table is a cross-tabulation of codes or code groups by documents or document groups. It shows how often a code (codes of a code group) has (have) been applied to a document or document group. See Code Document Table.



Co-occurrence Analysis

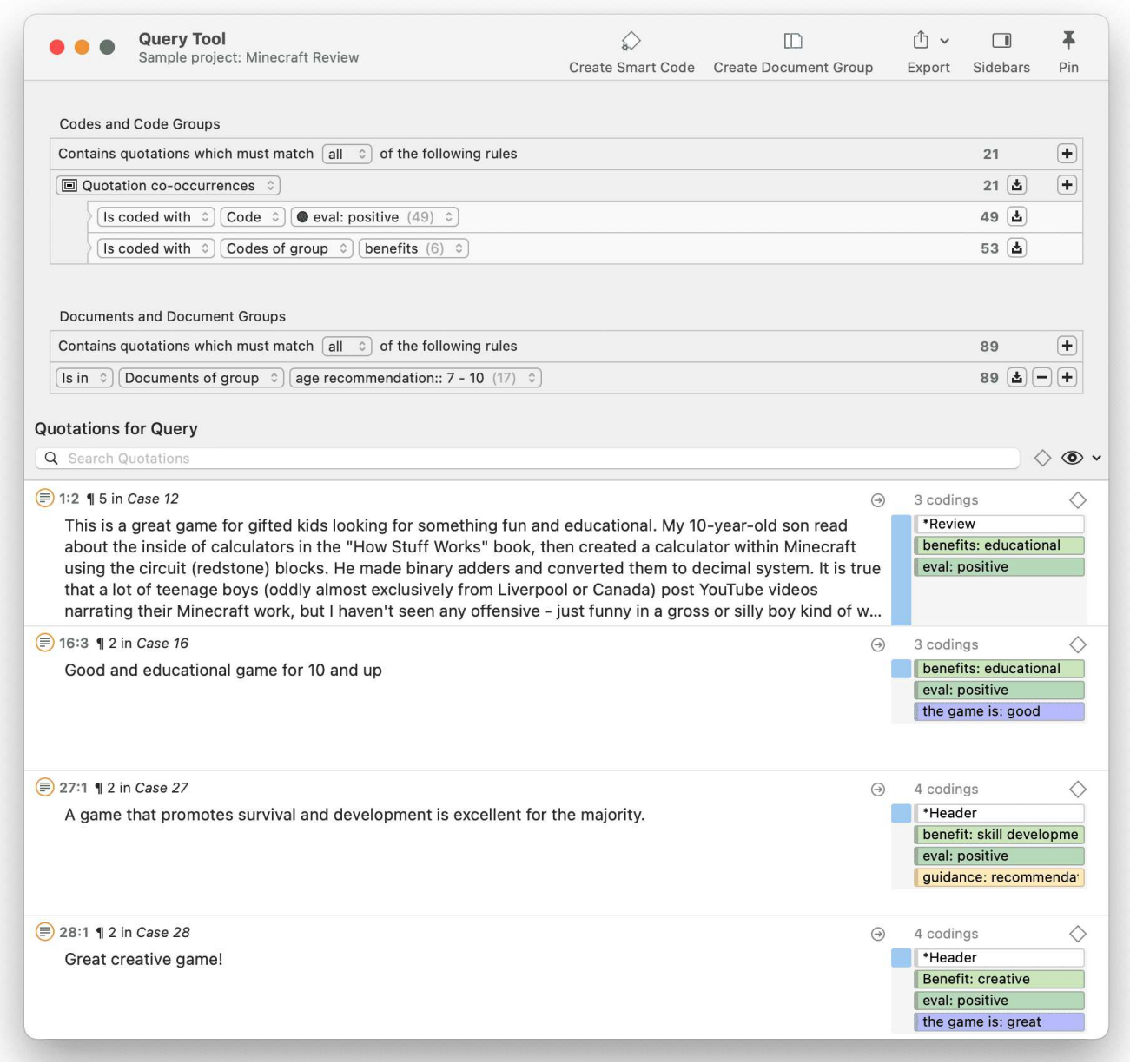
To get a quick overview where there might be interesting overlaps in coded data, simply right-click the codes you're interested in, and choose one of the co-occurrence options from the Analysis submenu. You can also open the Code Co-occurrence analysis tools directly from the menu or ribbon. See Code Co-Occurrence Tools.



The Query Tool

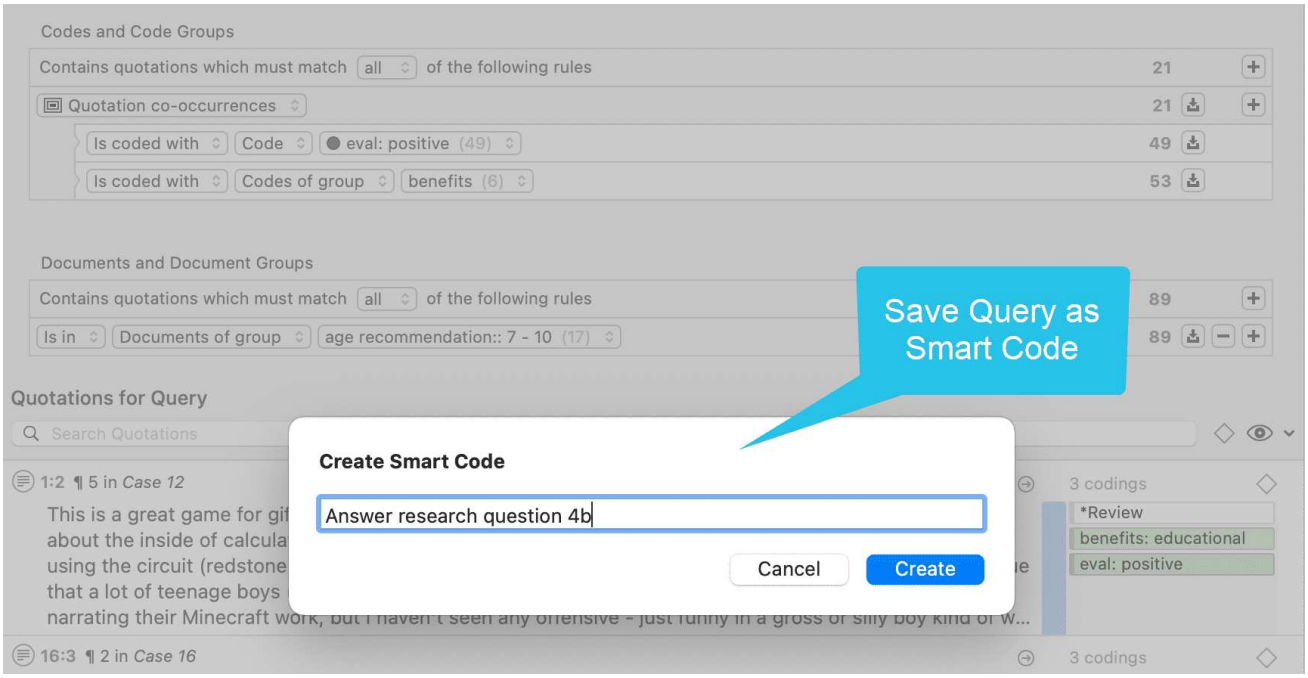
The Query Tool finds quotations based on a combination of codes using Boolean, Proximity or Semantic operators. Example: Show me all quotations where both Code A and Code B have been applied.

Such queries can also be combined with variables in form of documents or document groups. This means that you can restrict a query to parts of your data like: 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 The Query Tool.



Smart Codes

Smart Codes are stored queries. They can be reused and always reflect the current state of coding, 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 Working With Smart Codes.

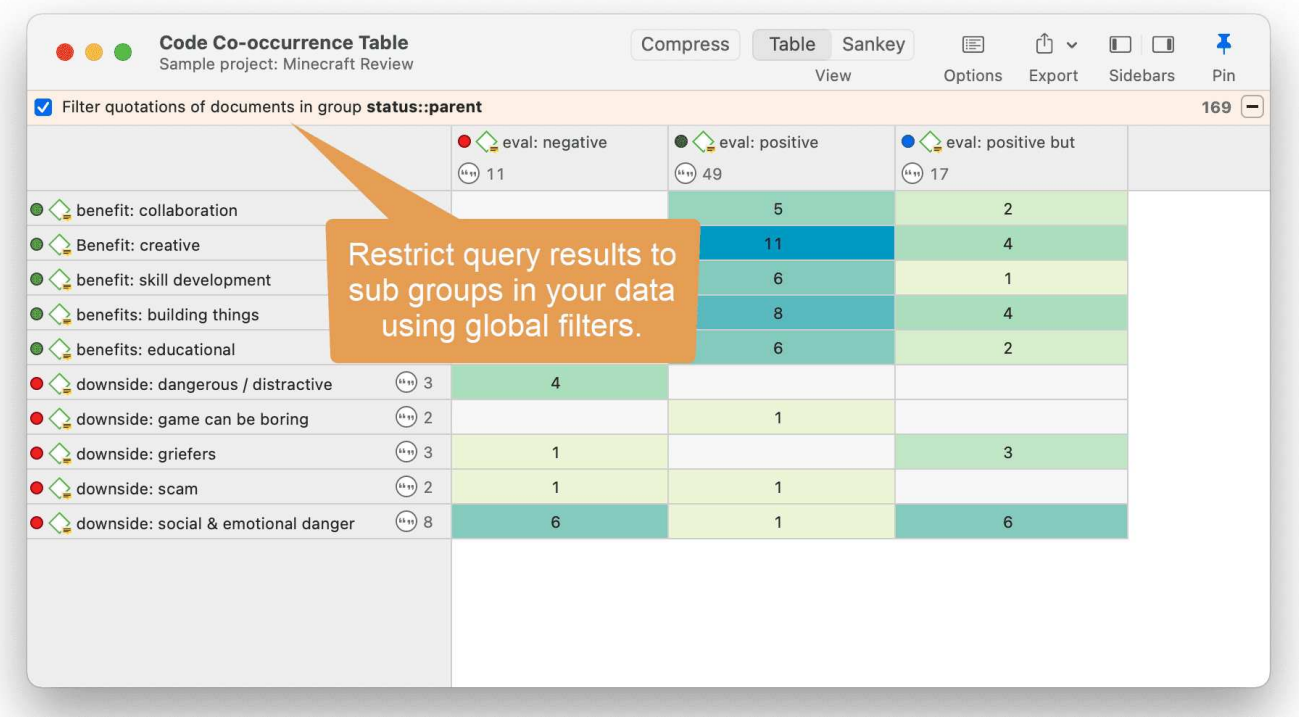


Smart Groups

Like smart codes, smart groups are stored queries based on groups. The purpose is to create groups on an aggregate level. For instance, if you have groups for gender, age and location, you can create smart groups that reflect a combination of these like all females from age group 1 living in city X. See Working With Smart Groups.

Global Filters

Global filters allow you to restrict searches across the entire project. If you set a document group as global filter, the results in the Codes-Document or Code Co-occurrence Table will be calculated based on the data in the filter and not for the entire project. Global filters effect all tools, windows, and networks. See Applying Global Filters For Data Analysis.


Code Co-occurrence Table
Sample project: Minecraft Review
Compress
Table
Sankey
View
Options
Export
Sidebars
Pin
Filter quotations of documents in group status::parent
169
eval: negative
11
eval: positive
49
eval: positive but
17
benefit: collaboration
5
2
Benefit: creative
11
4
benefit: skill development
6
1
benefits: building things
8
4
benefits: educational
6
2
downside: dangerous / distractive
3
4
downside: game can be boring
2
1
downside: griefers
3
1
3
downside: scam
2
1
1
downside: social & emotional danger
8
6
1
6
Restrict query results to sub groups in your data using global filters.

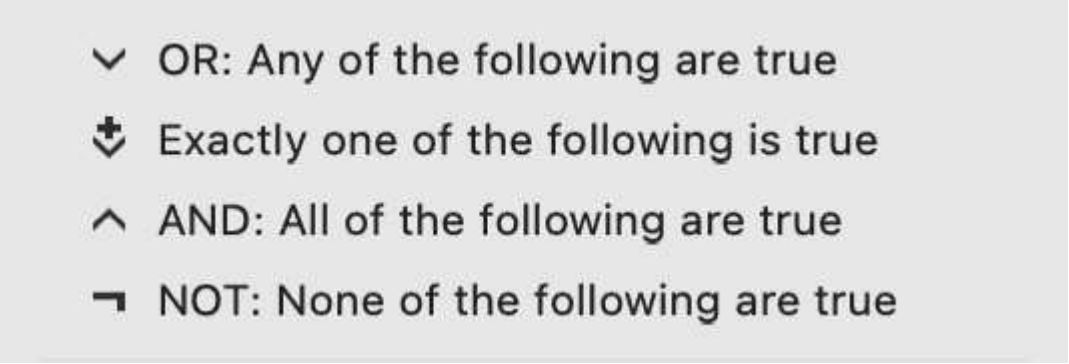
Available Operators for Querying Data

Knowing about the available operators is important when using the Code Co-occurrence Tools, the Query Tool, when creating Smart Codes and Smart Groups. The following types of operators are available:

- **Boolean operators** allow combinations of keywords according to set operations. They are the most common operators used in information retrieval systems.
- **Proximity operators** are used to analyze the spatial relations (e.g., distance, within/enclosing, overlapping, co-occurrence) between coded data segments.

Boolean Operators

Video Tutorial: Explaining Boolean Operators



OR, AND, ONE OF (exactly one of the following is true) and NOT

- OR, AND, and ONE OF (exactly one of the following is true) are **binary operators** which need exactly two operands as input.
- NOT needs only one operand.
- Codes, code groups, or smart codes can be used as operands in a query.

AND: ALL of the following are true

The AND operator finds quotations that match ALL the conditions specified in the query. This means you have applied two or more codes to the same quotation.

Example: All quotations coded with both 'code A' AND 'code B' .

The AND operator is very selective and often produces an empty result set as it requires that the selected codes have all been applied to exactly the same data segment. It produces best results when combined with less restrictive operators or when the overall number of the available text segments is large.

OR: ANY of the following are true

The OR operator does not really match the everyday usage of OR. Its meaning is At least one of..., including the case where ALL conditions match. The OR operator retrieves all quotations that are coded with any of the codes used in the expression.

Example: All quotations coded with 'code A' OR 'code B'. The result list will contain all quotations coded with 'code A' and all quotations coded with 'code B', or quotations coded with both codes.

ONE OF: Exactly one of the following is true

The ONE OF operator asks that EXACTLY one of the conditions must meet. It translates into the everyday either-or.

Example: All quotations coded with EITHER 'code A' OR 'code B' (but not with both).

NOT: None of the following are true

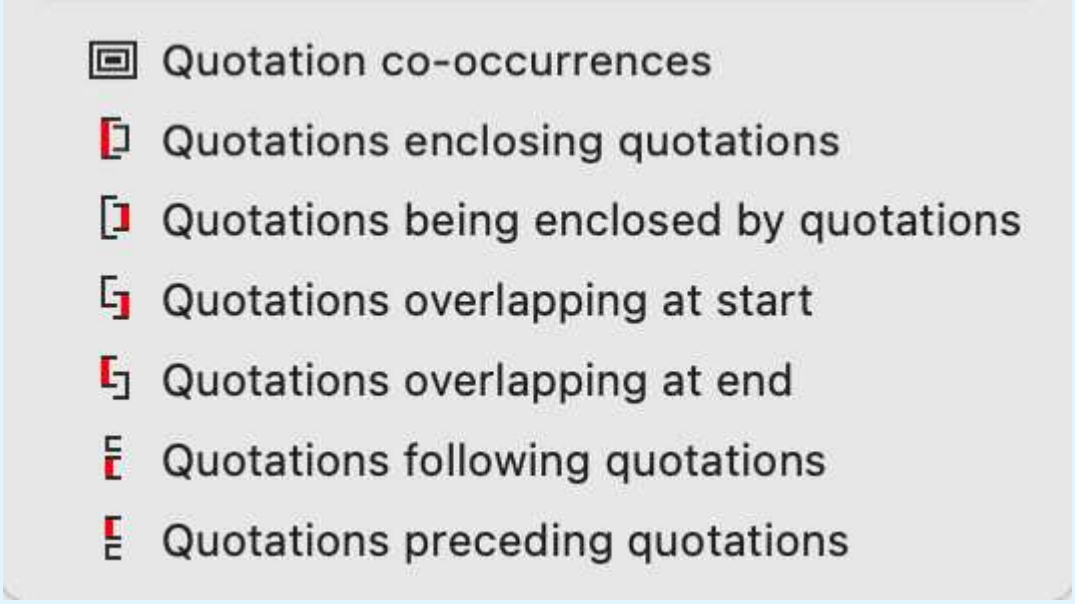
The NOT operator tests for the absence of a condition. Technically, it subtracts the findings of the non-negated term from all data segments available. Given 1000 quotations in the project and 20 quotations assigned to 'code A', the query NOT 'code A' retrieves 980 quotations - those which are *not* coded with 'code A'.

The operator can be used with an arbitrary expression as in the argument NOT ('code A' OR 'code B') which is the equivalent of neither 'code A' nor 'code B'.

See Example 2 in the section Building Complex Queries.

Proximity Operators

Video Tutorial: Proximity Operators and Example Queries



Proximity describes the spatial relation< between quotations. Quotations can be embedded in one another, one may follow another, etc. The operators in this section exploit these relationships. They require two operands as their arguments.

Proximity operators differ from the other operators in one important aspect: Proximity operators are *non-commutative*. This property makes their usage a little more difficult to learn.

- **Quotations enclosing quotations**: A ENCLOSES B retrieves all quotations coded with A that contain quotations coded with B.
- **Quotations being enclosed by quotations**: A being enclosed by B (WITHIN) retrieves all quotations coded with A that are contained within data segments coded with B.
- **Overlaps (quotation overlapping at start)**: A OVERLAPS B retrieves all quotations coded with A that overlap quotations coded with B
- **Overlapped by (quotations overlapping at the end)**: A OVERLAPPED BY B retrieves all quotations coded with A that are overlapped by quotations coded with B.
- **Co-Occurs**: Often when interested in the relation between two or more codes, you don't really care whether something overlaps or is overlapped by, or is within or encloses. It this is the case, you simply use the Co-occurs operator.

Co-occur is essentially a short-cut for a combination of the four proximity operators discussed above, plus the operator AND. AND is a Boolean operator, but also finds co-occurrence, namely all coded segments that overlap 100%.

The more general co-occurrence operator is quite useful when working with transcripts. In interviews, people often jump back and forth in time or between contexts, and therefore it often does not make much sense to use the very specific embedding or overlap operators. With other types of data they are however quite useful. Think of video data where it might be important whether action A was already going on before action B started or vice versa. Or if you have coded longer sections in your data like biographical time periods in a person's life and then did some more fine-grained coding within these time periods. Then the WITHIN operator comes in very handy. The same applies when working with pre-coded survey or focus group data. Using WITHIN, you can for instance find all data segments coded with 'topic x' WITHIN 'question 5'; or all data segments coded with 'code A' WITHIN 'speaker unit: Tom'.

Non-commutativity of proximity operators

Non-commutativity requires a certain input sequence for the operands. While A OR B is equal to B OR A, this does not hold for any of the proximity operators: A FOLLOWS B is not equal to B

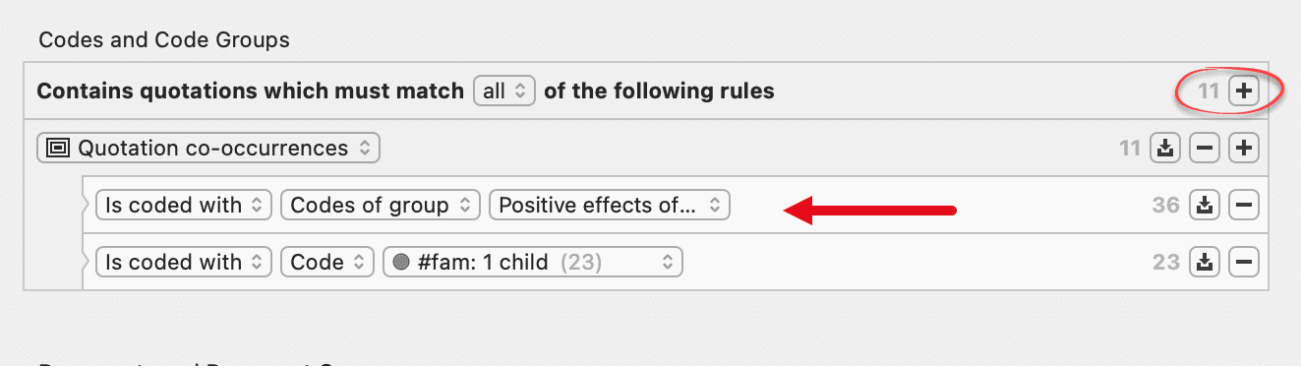
FOLLOWS A. When building a query, always enter the expressions in the order in which they appear in their natural language manifestation.

Another important characteristic for these operators when using the query tool is the specification of the operand for which you want the quotations retrieved. A WITHIN B specifies the constraint, but you must also specify if you want the quotations for the As or the Bs. This is done implicitly by the sequence.

If you enter the query 'A Co-occur B', all quotations coded with A are retrieved.

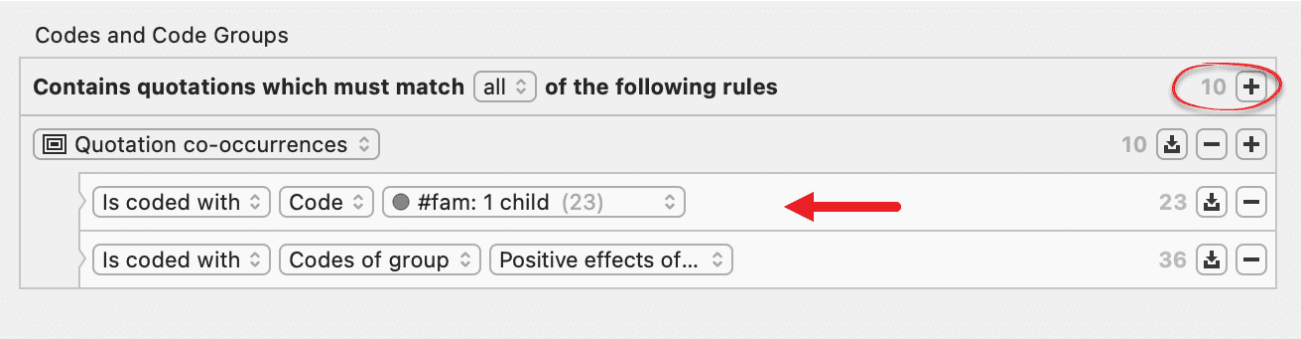
If you enter 'B co-occur A', all quotations coded with B are retrieved.

For example, if you want to retrieve all segments coded with codes of the code group 'Positive effects of parenting' for all comments written by people with 1 child: 'No. of children: 1 child', the query yields 11 quotations:



As results, you will get all quotations coded with the codes of the code group 'Positive effects of parenting'.

If you enter the codes in a different order - the code 'No. of children: 1 child' first - then the query retrieves 10 quotations. This is not a mistake, because this time the result will be all quotations coded with the code 'No. of children: 1 child'.



In the Query Tool, you need to enter the code whose content you are most interested in the first line.

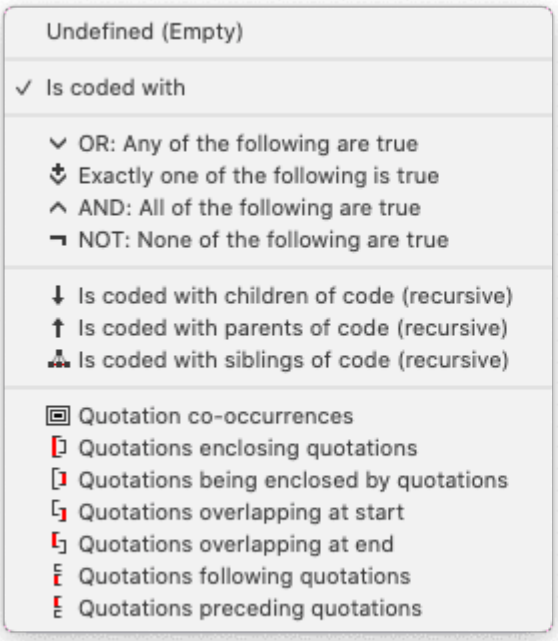
The Query Tool

The **Query Tool** is used for retrieving quotations using the codes they were associated with during the process of coding. The simplest retrieval of this kind - search for quotations with codes- is what you frequently do by double-clicking ona Code in the Code Manager or a code browser. See Retrieving Coded Data. 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 a variety of combinations of codes.

A **query** is a search expression built from operands (codes and code groups) and operators (Boolean, proximity or semantic operators) that define the conditions that a quotation must meet to be retrieved, for example "All quotations coded with both codes A and B".

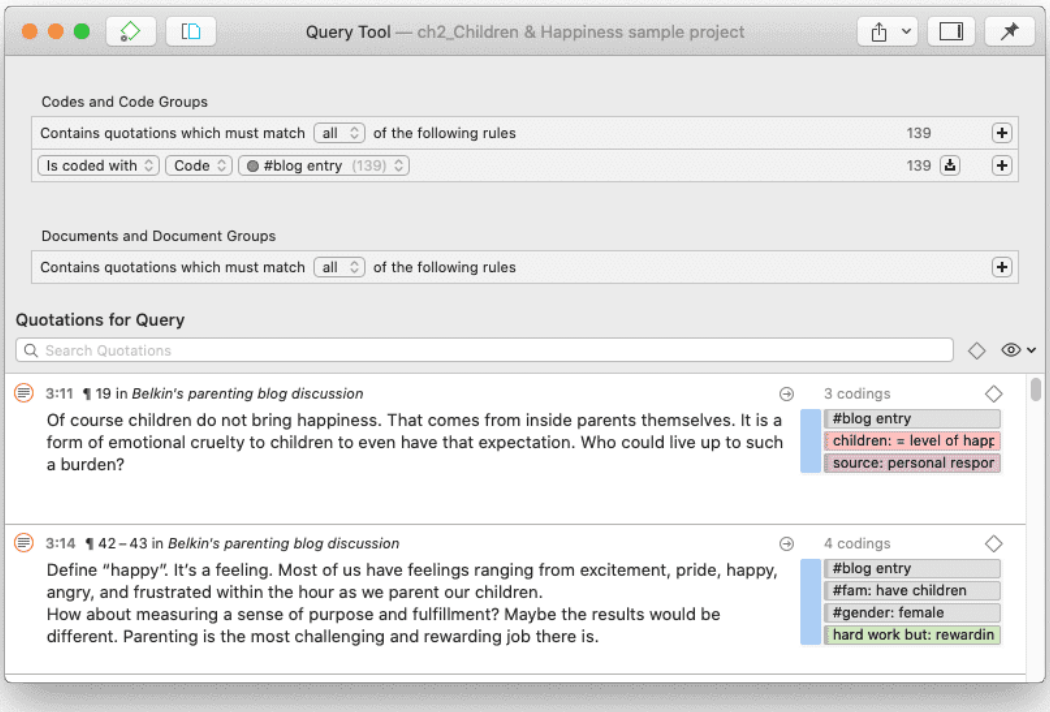
You can also use the Quotation Manager to build queries. The Quotation Manager, in addition to code queries, also allows you to set further filters like only including quotations that contain a certain word.

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.



To open the Query Tool:

> From the main menu, select **Analysis > Query Tool**. When the query tool opens, the first code from your code list is selected.



In the grey section at the top of the window, you build the query.

- You can select codes and code groups and combine them with Boolean, proximity or semantic operators.
- You can restrict the search to documents or document groups, or a combination using Boolean operators.

See the following pages for:

- example Boolean queries
- example proximity queries
- an example of a complex query based on a combination of operators

> Remember the results of a query in the query tool are always quotations.

How to Build a Query Using Boolean Operators

Video Tutorial Creating a Boolean OR query in the Query Tool

The examples shown are based on the *sample project Children & Happiness*. You can download and import it, if you want to follow along.

Example 1

> Open the Query Tool: Select **Analysis** > **Query Tool**. When the query tool opens, the first code from your code list is selected.

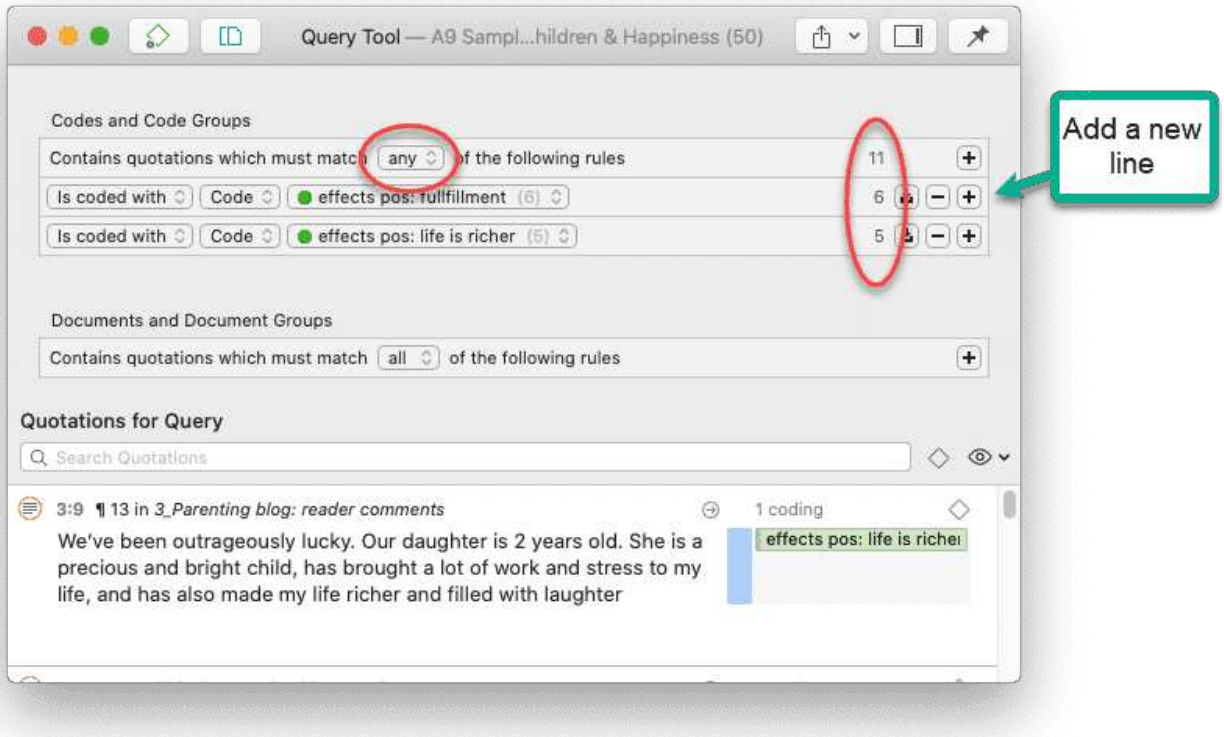
Question

The aim is to find all statements where people wrote about the two positive effects of parenting: 'fulfillment' and 'life is richer'.

> Change the operator in the first line to **any**.

> In the second line, change the code to 'effects pos: fulfillment'.

> Click on plus at the end of the second line to add a second code to the query. Select 'effects pos: life is richer'.

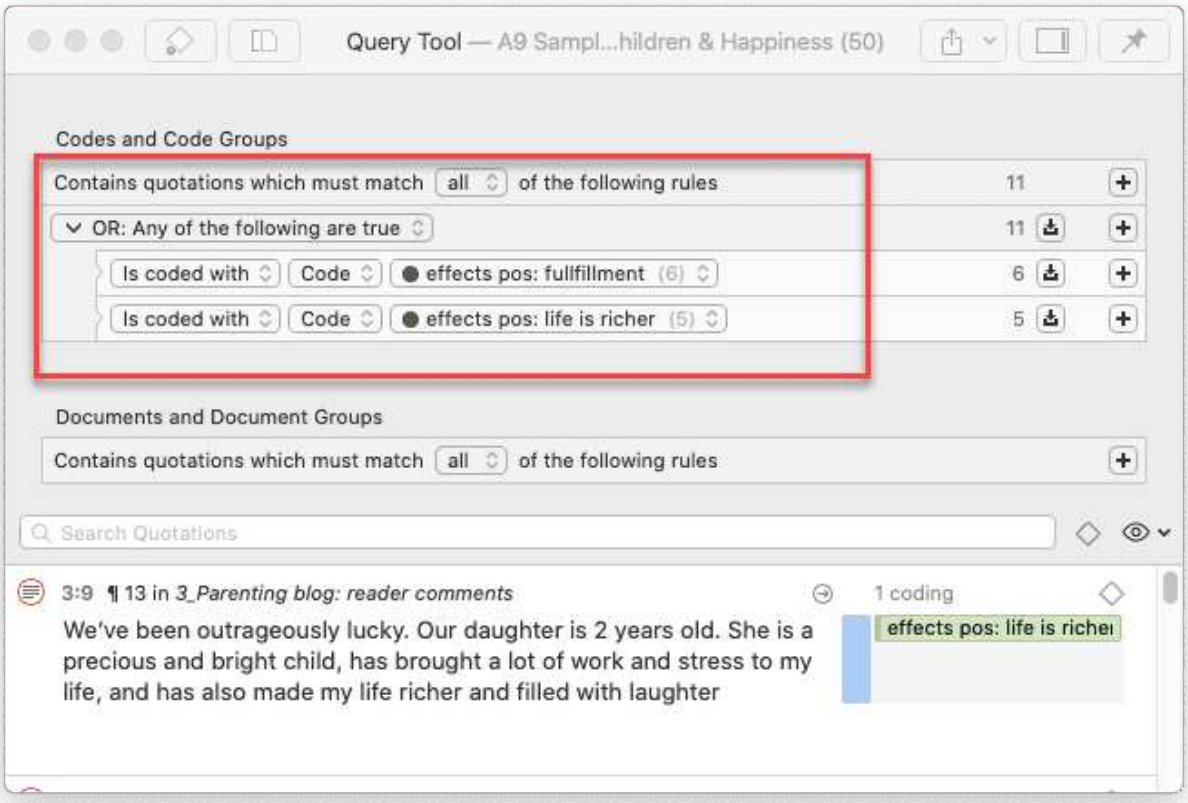


A second way to enter a Boolean query is as follows:

> Leave the first line as is: Contains quotations which must match **all** of the following rules.

> In the second line, click on the first field and select the **OR** operator. As the OR operator always requires two arguments, two lines are added where you can enter codes or code groups.

> Change the code in the third line to 'effects pos: fulfillment', and the code in the fourth line to 'effects pos: life is richer'.



If you want to select a code group instead of a code, click on the *Code* field and select Code Group from the drop-down menu.

Reading the Results of a Query

- The resulting number of quotations are shown on the right-hand side
- The results of the query are shown in the Quotation Reader below the query. The full functionality of the quotation reader is also available here.

Removing or Modifying a Query

If you want to add a new query, change the operator and select different codes or code groups. Instead of selecting a different operator, another option is to select **undefined (Empty).** Then you can build a query from scratch.

If a query gets more complex and there are multiple lines, you see a minus button. If you click on it, this part of the query is removed.

Example 2

In this example, we show how to build a query with two Boolean operators.

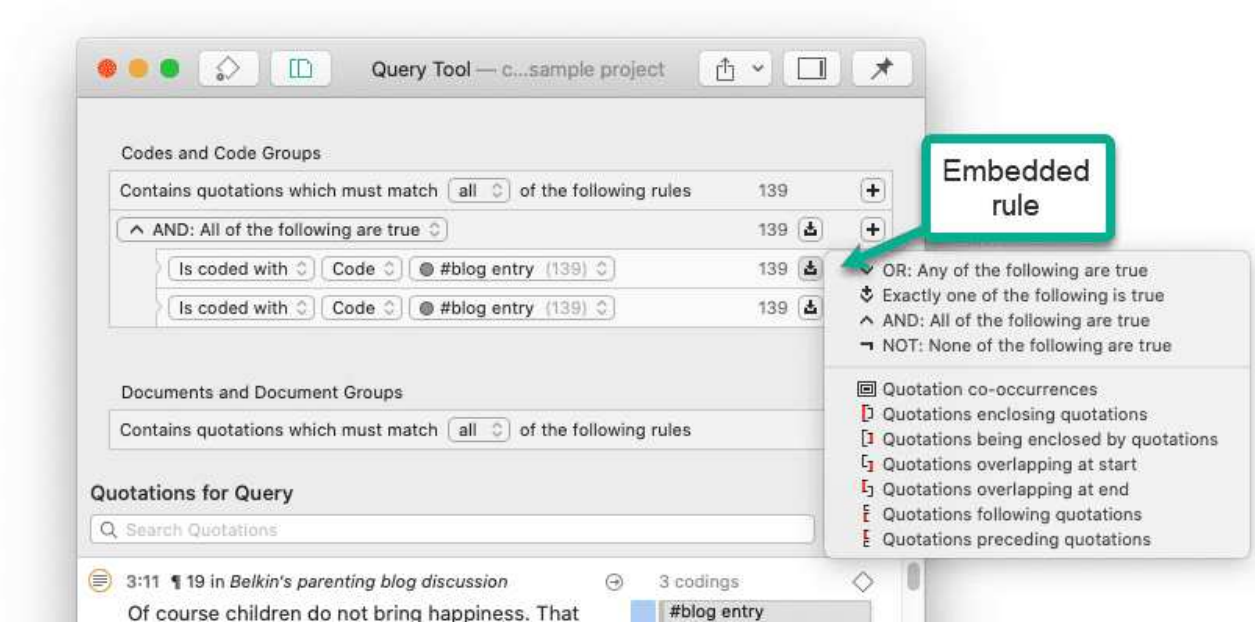
Question

The aim is to find all statements where people wrote that children either make them more happy, or they experience equal level of happiness, plus they mentioned a source of happiness captured by codes of the code group 'sources of happiness'.

This is a bit more complex, as we need to embed an OR query within an AND query. We first need to find all statements where people express equal level of happiness or more happiness. This is the OR part of the query. The AND part of the query is to find only those quotations that are also coded with any of the codes from the code group 'sources of happiness'.

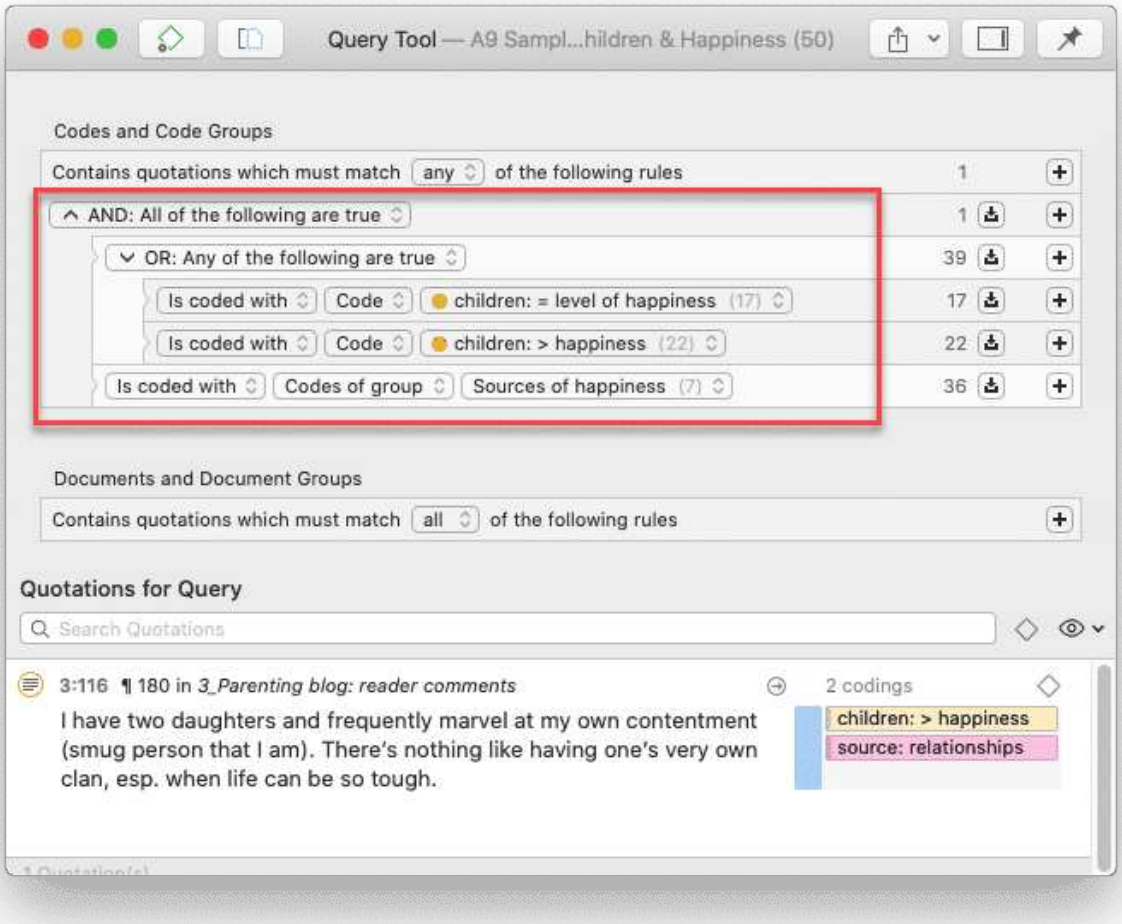
This query yields 1 quotation as result.

> We need to start with the AND operator, so we can embed the OR query within in: Select the operator **AND**. Next, you can either click on the button **Embed rule** on the right-hand side and select the **OR** operator, or change the field "is coded with" in the third line to the OR operator.



> Add the two codes 'children: = equal level of happiness' and 'children: > happiness' into the fourth and fifth line.

> In the sixth line change the field 'code' to code group and as code group select 'sources of happiness'. See image below.


Query Tool — A9 Sampl...hildren & Happiness (50)
Codes and Code Groups
Contains quotations which must match any of the following rules
1
AND: All of the following are true
1
OR: Any of the following are true
39
Is coded with Code children: = level of happiness (17)
17
Is coded with Code children: > happiness (22)
22
Is coded with Codes of group Sources of happiness (7)
36
Documents and Document Groups
Contains quotations which must match all of the following rules
Quotations for Query
Search Quotations
3:116 ¶ 180 in 3_Parenting blog: reader comments
2 codings
I have two daughters and frequently marvel at my own contentment (smug person that I am). There's nothing like having one's very own clan, esp. when life can be so tough.
children: > happiness
source: relationships

How to Build a Query using Proximity Operators

Video Tutorial: Proximity Operators and Example Queries

The examples shown are based on the *sample project Children & Happiness*

Example 1

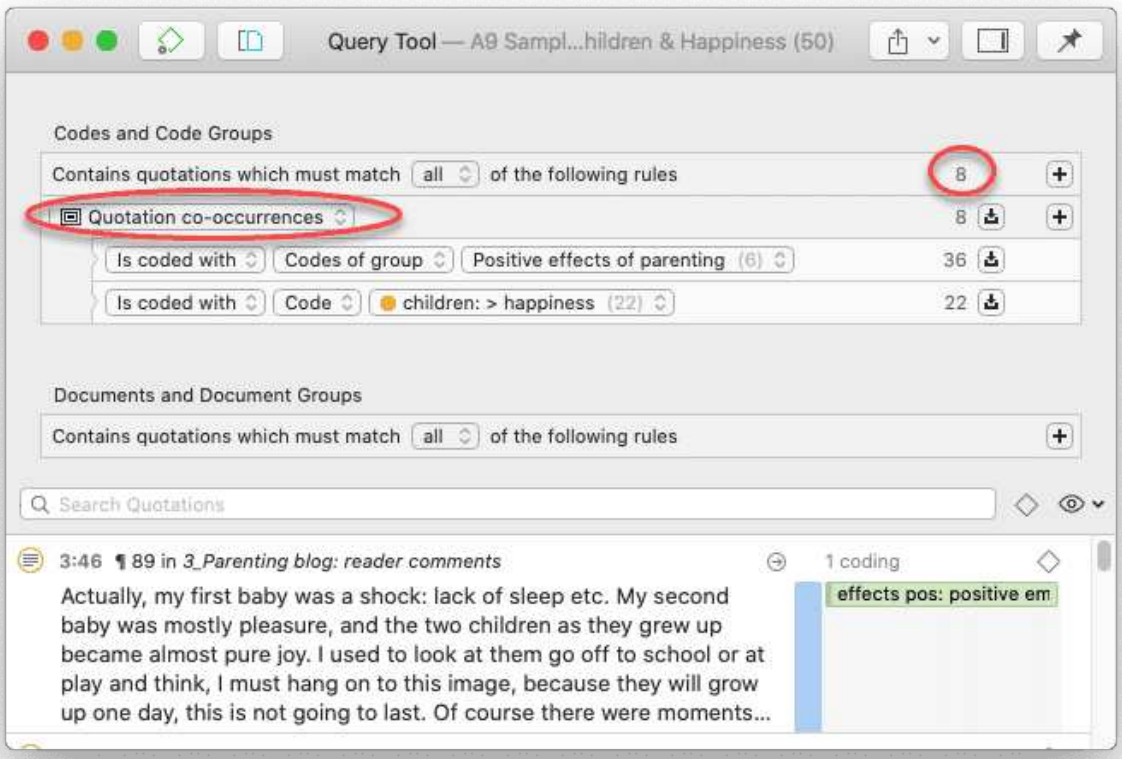
The aim is to find all data segments where people who mention positive effects of parenting, also write about that having children has made them happier.

> Open the Query Tool: Select **Analysis > Query Tool**. When the query tool opens, the first code from your code list is selected.

> In the field 'is coded with' select the option **Quotation co-occurrence**. This adds two lines to the query, as all proximity operators need two arguments.

> In the third line change codes to **codes of group** and add the code group 'effects of parenting positive'. In the fourth line add the code 'children: > happiness'.

The result of this query yields 8 quotations.



The results of a query are shown in the Quotation Reader. The full functionality of the quotation reader is also available here.

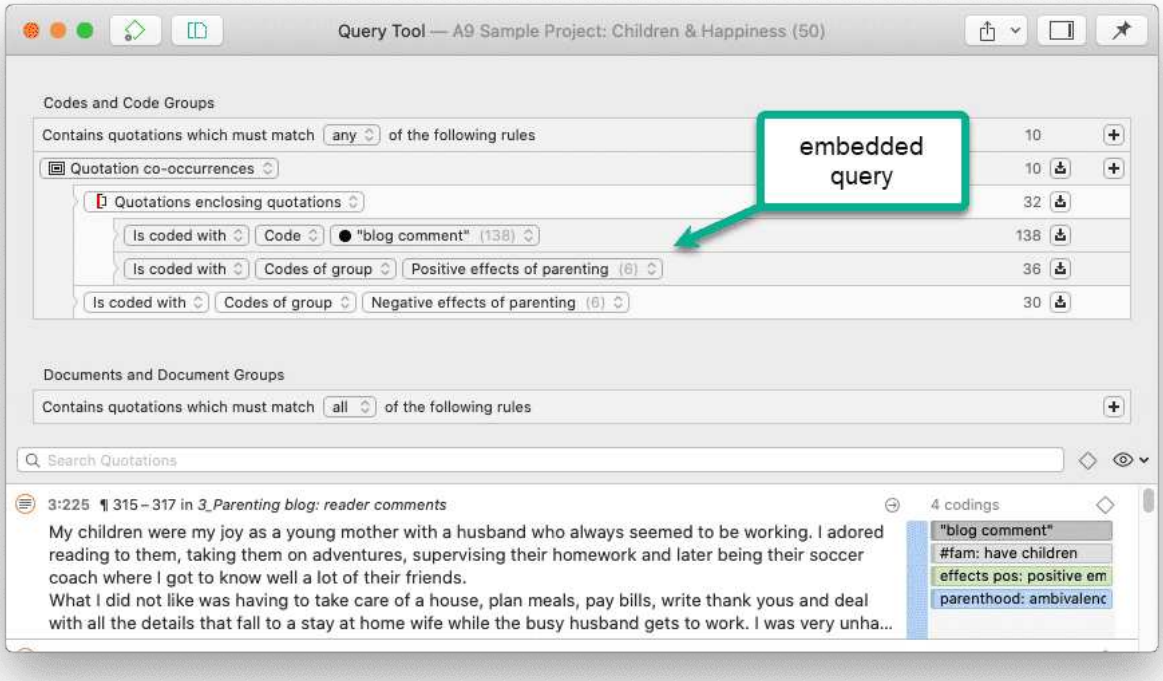
Example 2

You can also combine multiple proximity operators.

The aim is to find all blog comments where people wrote something about positive effects of parenting and negative effects of parenting. The statements about positive and negative effects are embedded in the blog comment, they can but do not have to overlap directly.

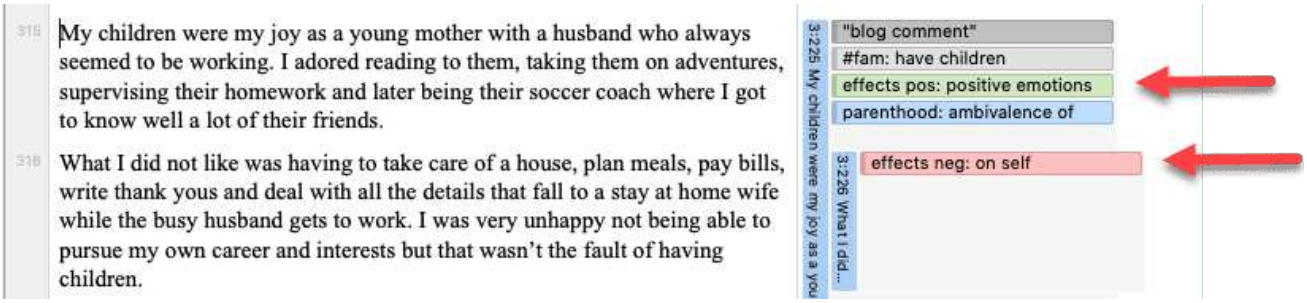
> Select the option **Quotation co-occurrences**.

As the statements about positive and negative effects do not necessarily overlap, we first need to find the blog comments that contain statements of either positive or negative effects. Therefore, we need to embed the following query:



> Select the option **Quotations enclosing quotations** and select the code 'blog comment' in the fourth line, and the code group 'positive effects of parenting' in the fifth line. In the sixth line, select the code group 'Negative effects of parenting'.

The result of this query yields 10 quotations. The following image shows one of the resulting quotations:



How to Build a Query using a Mix of Operators

Video Tutorial: Further Example Queries

The examples shown are based on the *sample project Children & Happiness*. You can download and import it, if you want to follow along.

The instructions below are not as detailed, as it is assumed that you have read the examples for Boolean Queries and Proximity Queries.

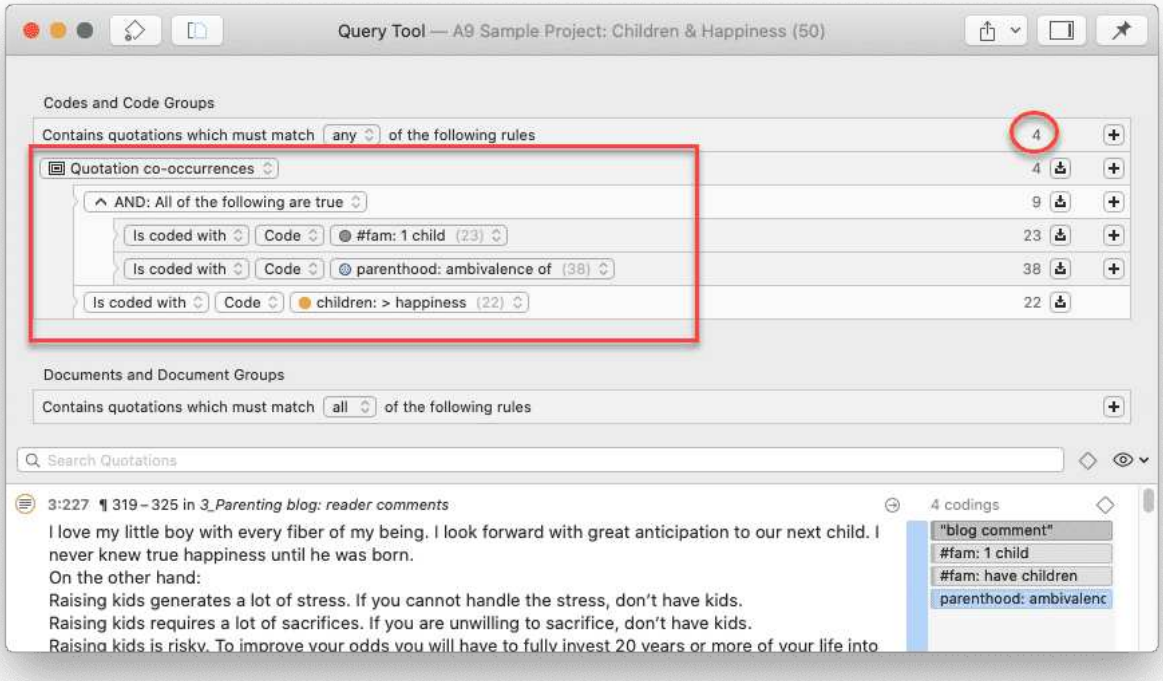
Example 1

Question: Find all blog comments written by people who have one child AND who expressed the ambivalence of parenthood that contain a statement that having children made them happier.

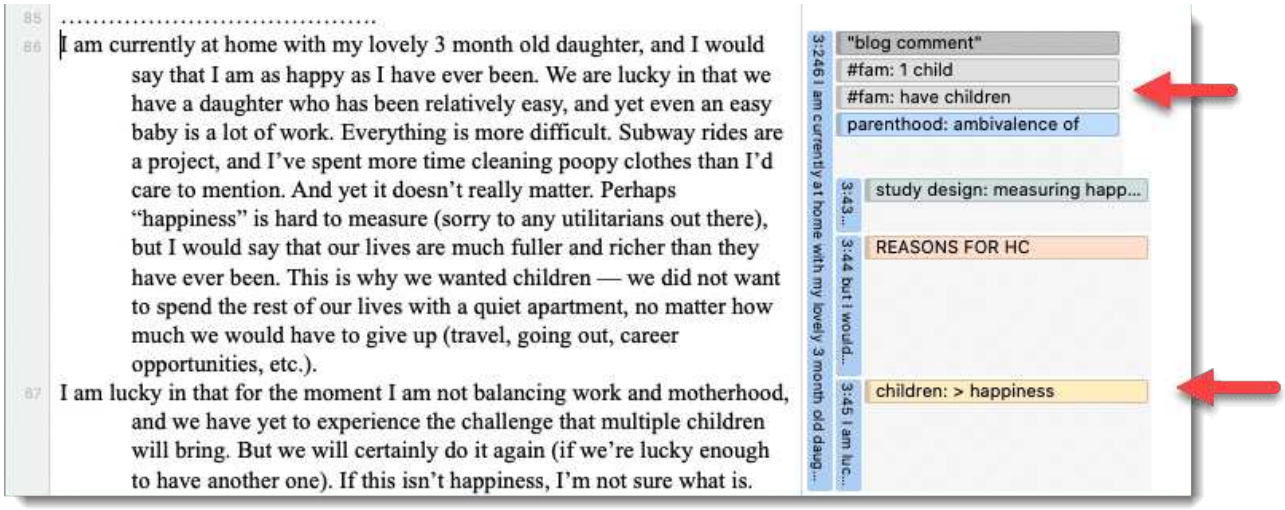
The AND query needs to be embedded within the co-occurrence query:

> Select the option **Quotation co-occurrence**. Add the AND query on the next line and enter the two codes '#fam: 1 child' and 'parenthood: ambivalence of'.

> To complete the co-occurrence query, add the code 'children: > happiness' to the last line.



The following image shows one of the resulting quotations:



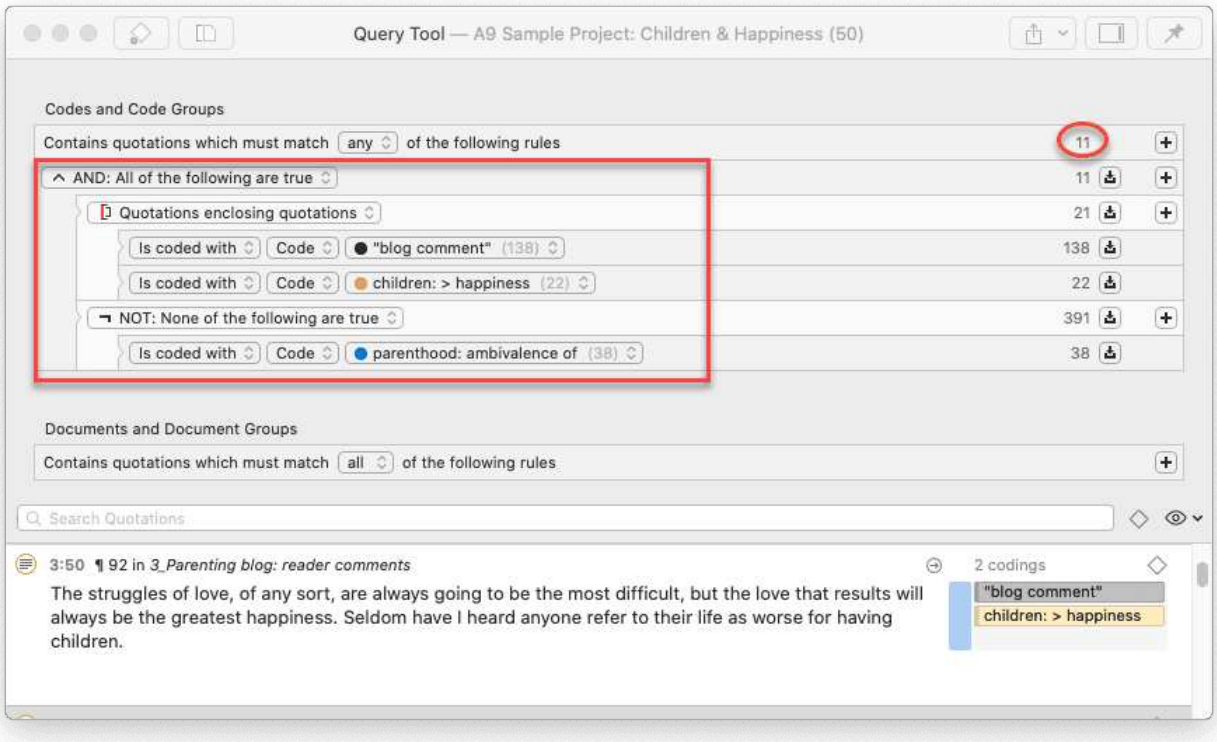
To explore the data further, you can exchange the single nodes of the query, for example to see whether there are also comments that match the same criteria for people with two children; or to find comments where people with 1 / 2 or more children write that having children made them less happy.

Example 2

The aim is to find all blog comments written by people who have expressed that children make them happy, that are NOT coded with the code 'parenthood: ambivalence'

Here we have to define two conditions that both must apply:

- Blog comments that enclose statements that children mean > happiness.
- All quotations that have not been coded with 'parenthood: ambivalence' As both conditions must be true, we need to use the AND operator to combine them:



The query yields 11 quotations. You see one of the results in the image above.

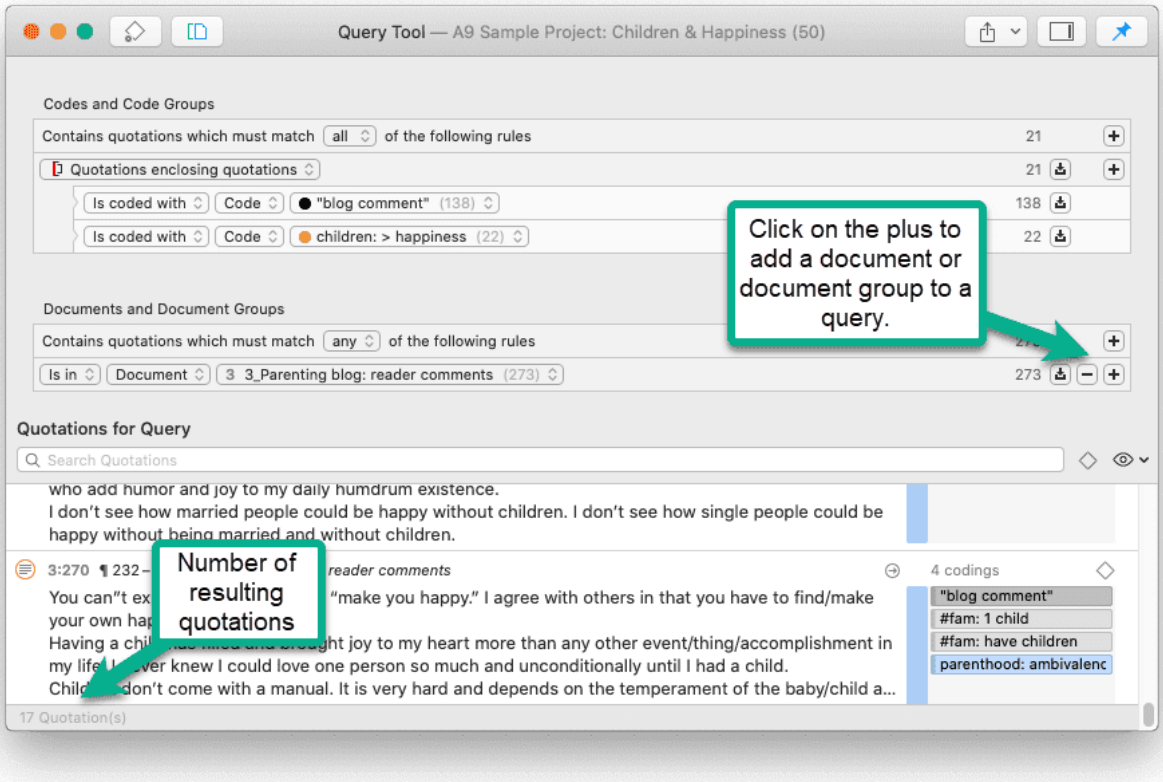
Restrict a Query to Sub Groups in your Data

Video Tutorial: Query Tool with Scope

Opening the Scope Tool

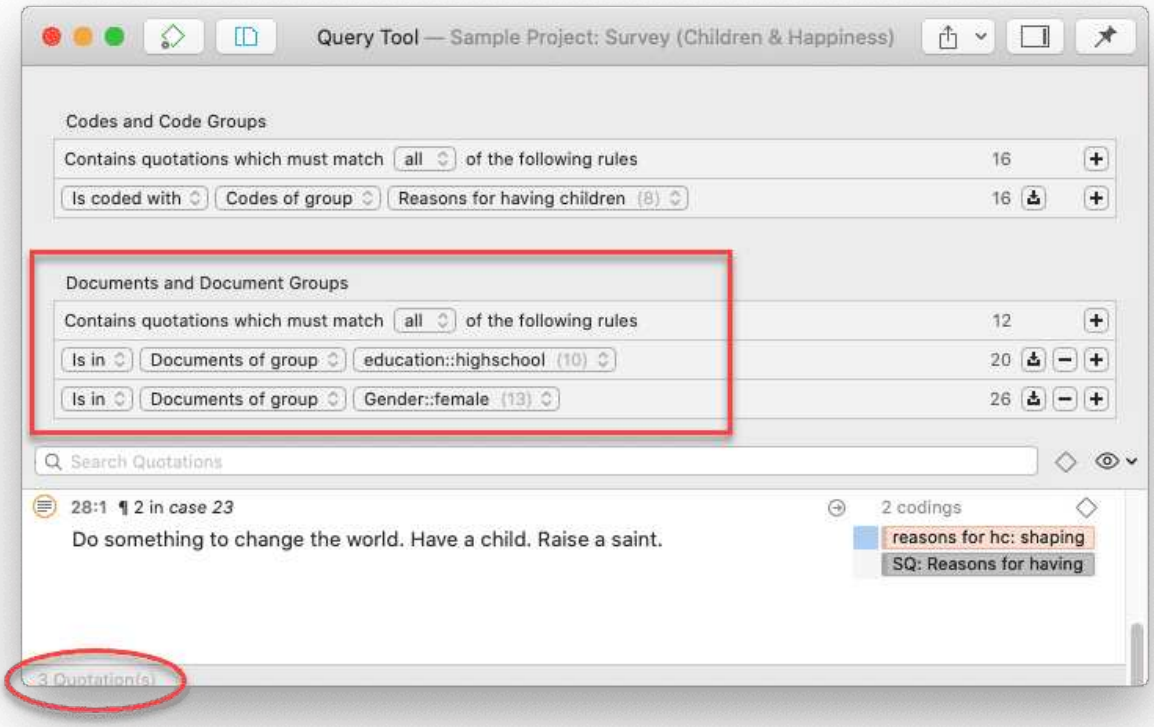
If you want to restrict a search to a particular document or document group, e.g., because you are interested in comparing male and female respondents, you can add a document or document group filter to a query.

Below the area where you enter the code query, you can select documents or document groups, or combine them using Boolean operators.



> Click on the **plus (+)** button to add a new line. Select 'is in' 'Document' or 'Document Group', and select a document or document group.

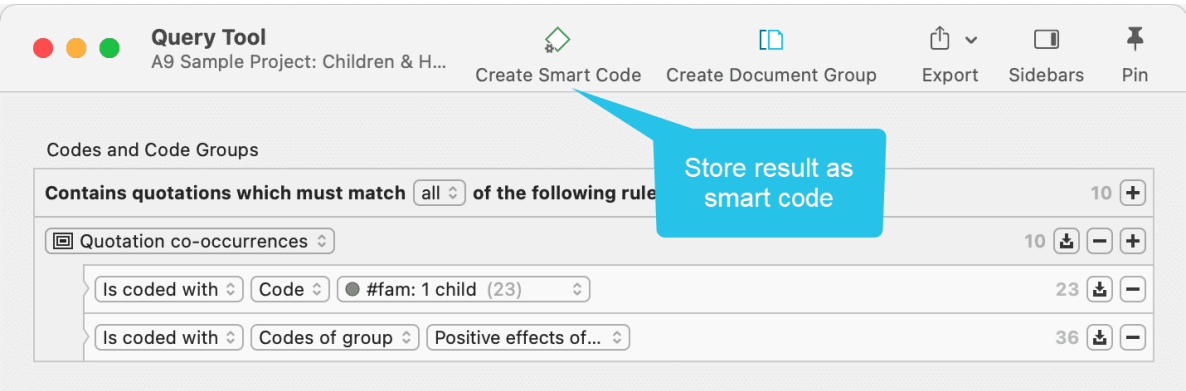
Instead of 'is in', you can also select one of the following Boolean operators: OR, Exactly one, AND, or NOT. In the image below, the code query is limited to a combination of two document groups, i.e., quotations found in documents of female respondents with a high school degree.



Alternative:

Storing the Results of a Query

You can store the results of a query as a smart code for further re-use. You can learn more about smart codes here

> After you have created a query, click on the **Smart Code** button in toolbar inst
> Enter a name for the smart code and click **Create**.
>
> 
>
>
> warn
> A smart code always contains the quotations of the entire project. If you set a scope to restrict the query to certain document or document groups, this is not saved in the smart code!

You can now review all quotations of this query, e.g. in the Code or Quotation Manager, at any time. If you make some changes in your coding, the smart code will always give you the up-to-date results.

Smart codes can be recognized by the gray dot at the bottom left-hand side of the code icon. See Working With Smart Codes for further information.

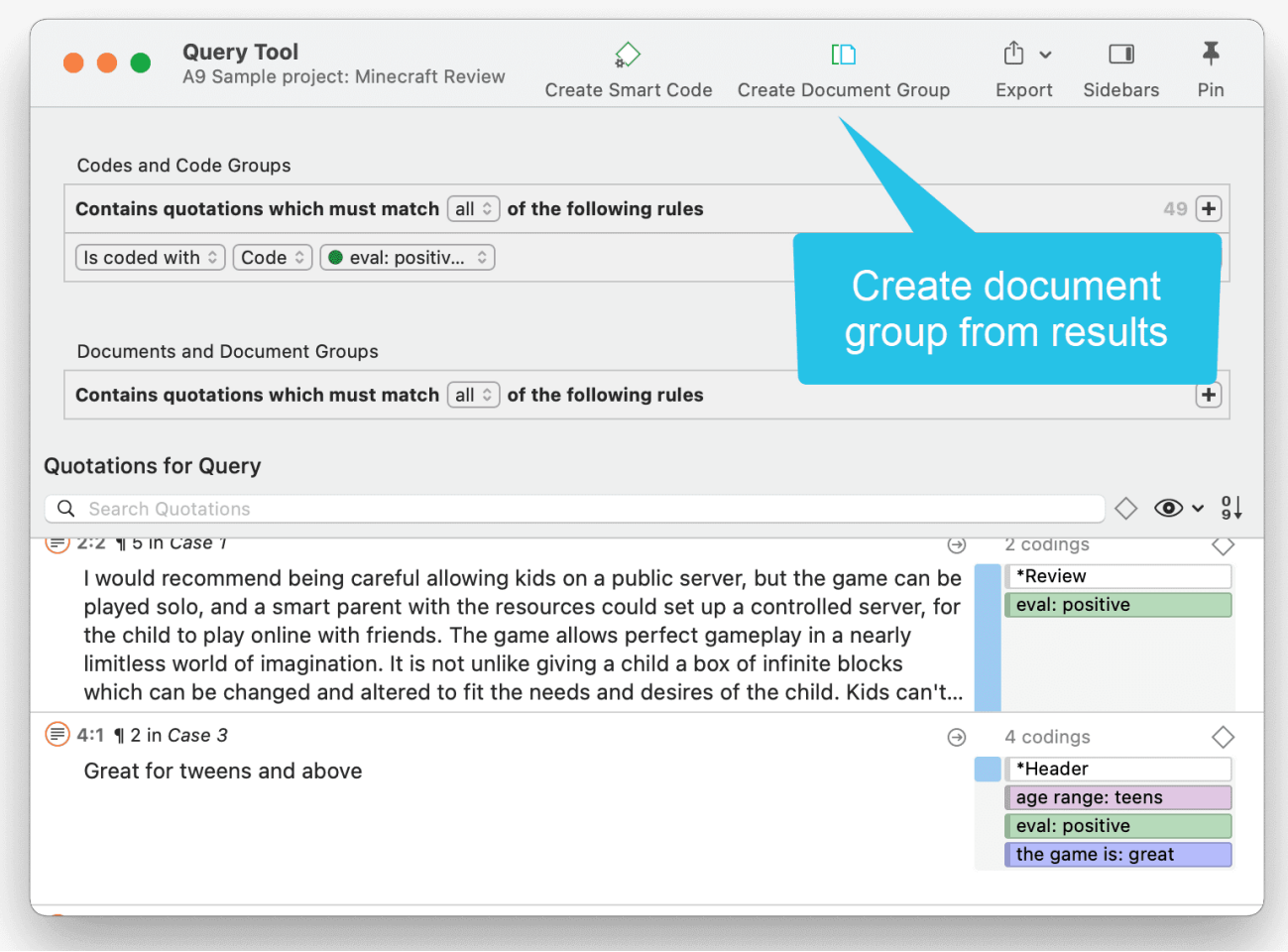
If a query result delivers the quotations that are necessary to answer a research question, a smart code can be a convenient way to store this result. This can be reflected in the name of the smart code, e.g. *Research question 3: Positive & negative views on parenting*.

Creating Document Groups from Results

When you add documents to a project, it is easy to create document groups based on sample characteristics like gender, age, profession, location, etc.

At times, you first need to code the data to find relevant information like years of working experience, special skills, attitudes about something, relationship to other people, etc. For this you need an option to create document groups based on query results.

> Create a query. See for instance Example Boolean Query. Click on the **Document Group** button in the toolbar, enter a name for the new group, and click **Create**.
> ATLAS.ti creates a new group from all documents that yield quotation results based on the query.



The query might be as simple as just selected one code.

For instance, if you have coded for work experience:

- work experience: 0 - 5 years

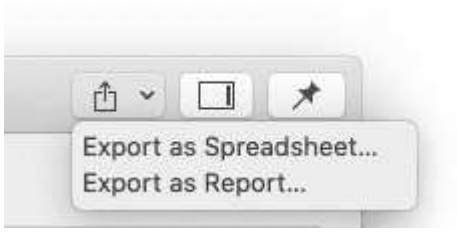
- work experience: 6 - 10 years
- work experience: 10 - 15 years
- work experience: > 15 years

You would simply add the code 'work experience: 0 - 5 years' and click on the Document Group button to create a document group of all respondents who have a work experience of 0 - 5 years. Then you add the code 'work experience: 6 - 10 years' and create a document group, and so on.

Query Tool Reports

Export as Spreadsheet

> To create a report, open the drop-down menu of the report button in the toolbar and select **Export as Spreadsheet.** The content of the report is the same as from a Quotation Reader or the Quotation Manager. It contains all columns from the Quotation Manager.



Export as Report

When using this option, you get a report in text or PDF format. The report is configurable, this means you can select what it should contain. Before you create the report, you see a preview.

> Click on the drop-down menu of the report button in the toolbar and select Export as Report.

On the left-hand side you see how the report looks like given the current selections. On the right-hand side, you can select further options:

- **Filter:** If you selected items before clicking on the report button, you can switch between creating a report for only the selected or all items.
- **Grouping:** You can group the report by codes, code groups, documents, document groups, document type, creating and modifying user. Select a grouping option if appropriate.

If you select to group quotations by code, and a quotation is coded by multiple codes groups, the quotations for this code will occur multiple times in the report.
If you select to group by code groups, and a code is a member of multiple code groups, the quotations for this code will occur multiple times in the report. The same applies to document groups.

Report Options

In this field, you can select which content should be displayed in the report. As soon as you select an option, you see in the preview how it will look like in the report. See below for further detail.

- Type of Content: text, image, geo, audio or video
- Add the Creating & Modifying User to the report.
- in Document: Adds the document name to the report. If selected, you can add further information about the document from the subtree.
- Coding: Adds the codes that are applied to the quotation to the report. If selected, you can add further information about the code(s) from the subtree.
- **Hyperlinks:** Adds quotations that are linked to a quotation to the report. If selected, you can add further information about the linked quotations from the subtree, like their content.
- **Linked Memos:** Adds the memo(s) that are linked to the quotation to the report. If selected, you can add further information about the memo from the subtree, like the memo content.
- Content: Is selected by default. If selected, the content of the quotation is displayed.
- Comments: Adds the comment you have written for a quotation to the report.

Save or Print

- Save: This saves the report as Word document. Select a name for the report and a location.
- Print: You can send the report directly to a printer and print it, or you can save it as PDF file. Other options are:
    - Save as PostScript
    - Send in Mail
    - Send via Messages
    - Save to iCloud Drive
    - Save to Web Receipts

Code-Document Table

You can use the **Code-Document Table** for within and across documents or group comparisons by relating codes or code groups and documents or document groups to each other.

The table cells contain:

- **frequency count** of the number of codings. This can be different from the number of quotations, if a quotation is coded by multiple codes. Counted is each link between a code and a quotation.
- **word count** of the quotations coded by the selected code or code group.

Running an Analysis in the Code-Document Table

From the main menu select **Analysis** > **Code-Document Table**.

Select codes or code groups for the table rows. The selected codes / code groups are added to the table.

Select documents or document groups for the table columns. The selected documents / document groups are added to the table.

How to make selections: To select an item, you need to click the check-box in front of it. It is also possible to select multiple items via the standard selection techniques using the **Ctrl/ Cmd or Shift-key**. After highlighting multiple items, push the **space bar** to activate the checkboxes of all selected items, or right click and chose **Check Selected.**

	parents who do not play 18 108	parents who play 7 63	players (other) 15 74	Totals
Benefit: benefit: skill development 13	2	5	4	11
Benefit: building things 18	9	4	3	16
Benefit: collaboration 7	3	4		7
Benefit: creative 17	7	7	2	16
Benefit: educational 15	10	1	2	13
Downside: dangerous / distractive 3	3			3
Downside: game can be boring 2		1	1	2
Downside: griefers 3	3			3
Downside: scam 2	2			2
Downside: social & emotional danger 8	7	1		8
Totals	46	23	12	81

How to read the table

By default, the codes / code groups are displayed in the left column, and the documents / document groups in the top row.

Left column

- Next to each code, the number indicates how often the code is applied in the entire project.
- Next to a code group, you see two numbers: The first one tells you how many codes are in the group, the second numbers gives you the number of codings. This is different from the number of quotations, as multiple codes from the same code group could be linked to the same quotation.

Top row

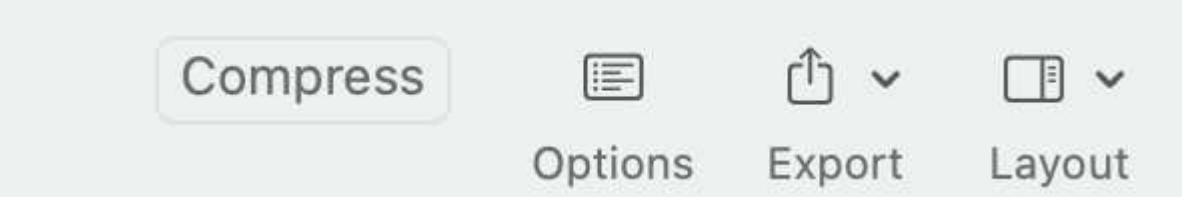
- Below a document, you see the total number of quotations in each document.
- Below a document group, you see two numbers: the first one tells you how many documents are in the document group, and the second number gives you the number of quotations for all documents in the group.

The additional information you get for each selected row or column item allows you to better evaluate the numbers inside the table cells. If the value in the table cell is 10, but the code overall was applied 100 times, this leads to a different interpretation as if the code was only applied 12 times in the entire project.

Table cells

- The results in the table cells show how often each selected code was (or the codes of a code group were) applied in each document or document group. Counted are the **number of codings**, unless you select to count words (see options).
- If you click on a cell in the table, the quotation content is shown in the Quotation Reader on the left-hand side.
- Below the table a Sankey Diagram is shown. You can see both at the same time, or view either the table or the Sankey Diagram. See below.

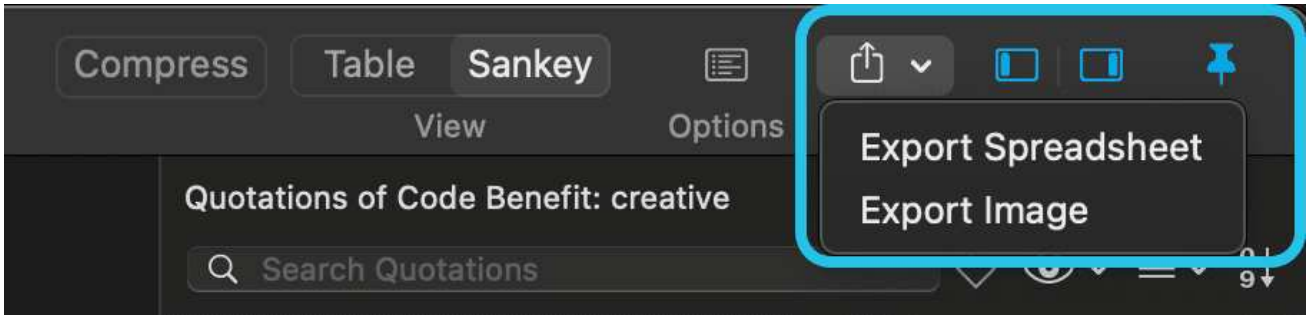
Code-Document Table Toolbar



Compress: This is a quick way to remove all rows or columns that only show empty cells. This is the same as manually deactivating codes or documents that yield no results. Thus, you cannot *decompress* a table.

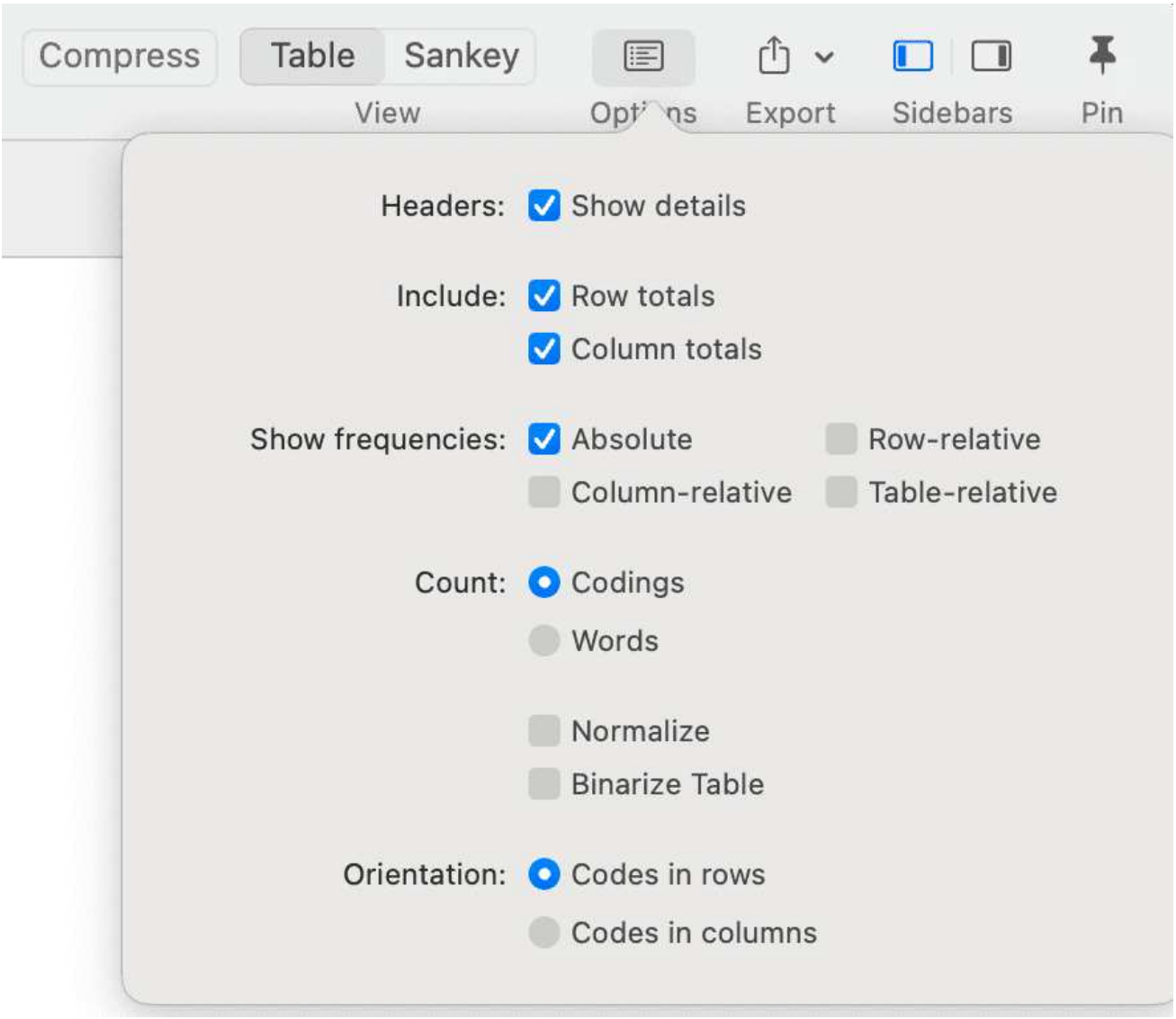
Options: See below.

Export: You can export the table as Excel spreadsheet, and the Sankey diagram as image in png format.



Code-Document Table Options

> Click on the **options** button to open the option pane.



Headers: You can hide the additional information about number of quotations per code or document / number of members in a group you see in the table headers.

Include: Display/hide the row or column totals.

Show frequencies: You can display absolute frequencies, row / column / or table relative frequencies.

Absolute Frequencies: The table cells show **the number of codings**. This is the number of times a code is linked to a quotation. For single codes the number of codings is the same as the number of quotations, but for code groups it can differ if codes that are in the same code group have been applied to the same quotation.

Relative Frequencies:

- **Column Rel.-Frequencies:** The table cells show relative frequencies based on the column cells. The total of each column will add up to 100%.
- **Row Rel.-Frequencies:** The table cells show relative frequencies based on the row cells. The total of each row will add up to 100%.

- **Table Rel.-Frequencies:** Display relative frequencies based on all codes used in the table. The totals of all row and column codes will add up to 100%.
- **Count:** You can select to count the number of codings, or the number of words of the quotations.
- **Count Codings:** Count the number of times a code has been applied to a quotation. Please note, the number of codings can be higher than the number of quotations if code groups are used as you can apply multiple codes to one quotation.
- **Count Words:** Count the words of the quotations coded by the selected code, or the codes of the selected code group.

Normalize: If documents are of unequal length, or document groups of unequal size, the absolute frequencies might be misleading as a measure of comparison. Indicative are the total number of quotations in a document or document group (see top row).

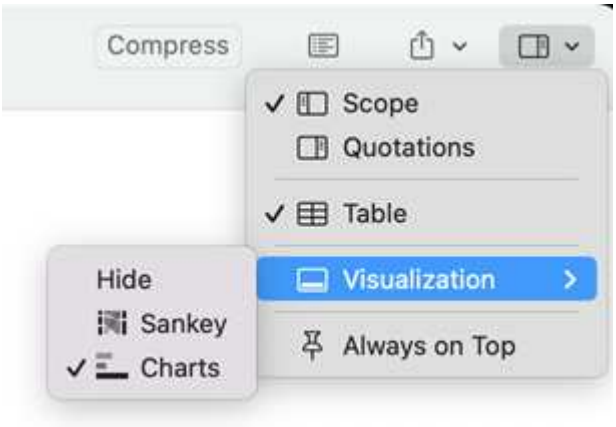
If you normalize the data the number of codings are adjusted. As benchmark, the document / document group column or row with the highest total is used. For example, if you compare two documents, and the total number of codings for the first document is 100 and for the second document it is 50, then all codings of the second document are multiplied by 100/50 = 2. See Normalizing Data.

Binarize Table: This option reduces all cell values to 0 and 1. It shows whether a code, or codes of a code group, occur or do not occur in a document, or a document group. If they occur a black dot is shown; if not, the cell is empty. This makes it easier to identify a pattern in the data.

When you export the table to Excel, the dots are turned into 1s and the empty cells into 0s. This allows, for example, a discriminant analysis to be carried out in a statistical program. See Binarize Table.

Orientation: Change rows and columns.

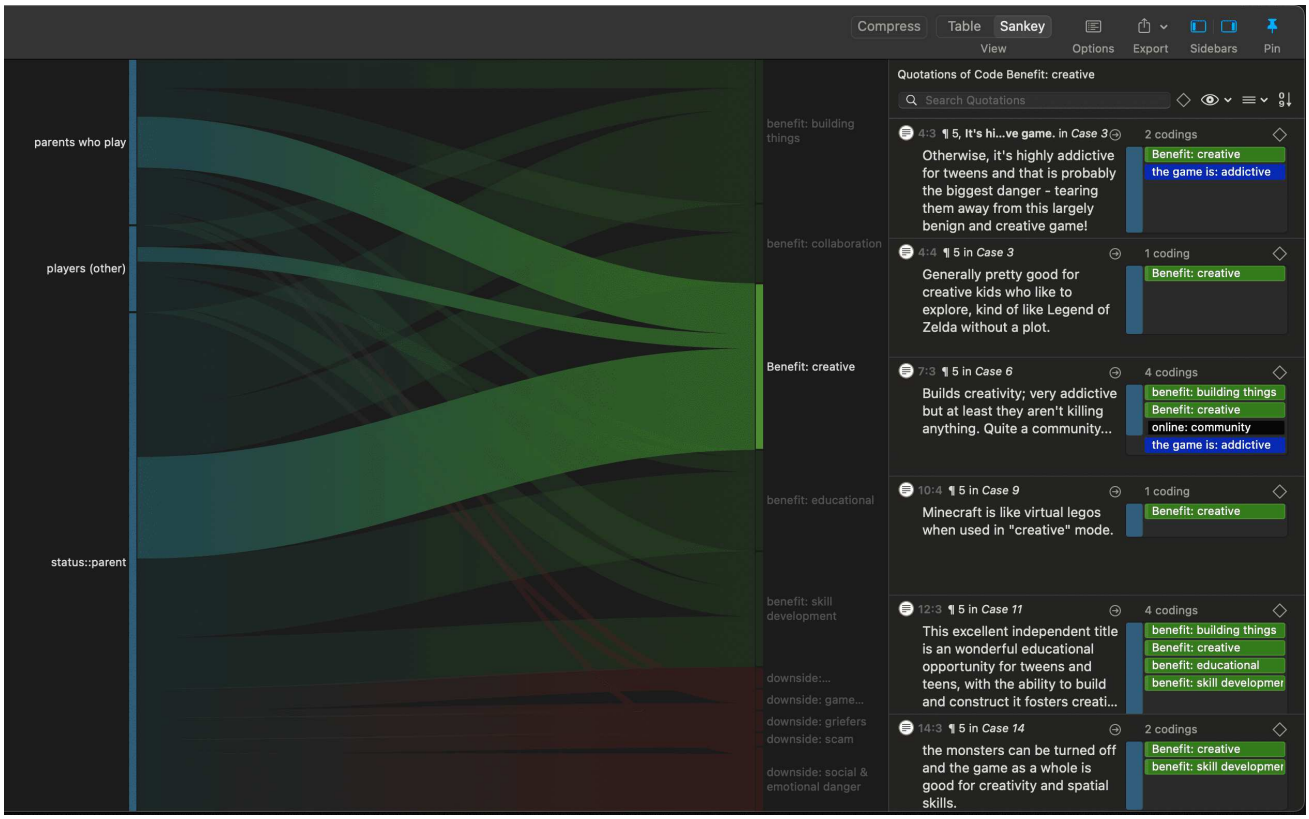
Code-Document Table Layout Options



If you need more space on your screen, you can hide the two lists on the right- and left-hand side (scope and quotations).

If you want more room for the visualizations, you can hide the table.

The table visualization is available as Sankey diagram or barchart. Below you see an example of a Sankey diagram in dark mode.



Code-Document Table: Relative Frequencies

Relative frequencies are useful for comparing code distributions across or within documents or document groups, as percentages are easier to comprehend.

> If documents are of unequal length, or if document groups have an unequal number of members, it is recommended to normalize the counts as absolute counts may distort the results. See Data Normalization.

Across Group Comparison: Row Relative Frequencies

		parents who do not play 18 108	parents who play 7 63	players (other) 15 74	Totals
Benefit: building things	18	31,58%	28,07%	40,35%	100 %
Benefit: collaboration	7	27,27%	72,73%		100 %
Benefit: creative	17	24,42%	48,84%	26,74%	100 %
Benefit: educational	15	50,85%	10,17%	38,98%	100 %
Benefit: skill development	13	7,32%	36,59%	56,10%	100 %
Downside: dangerous / distractive	3	100 %			100 %
Downside: game can be boring	2		34,29%	65,71%	100 %
Downside: griefers	3	100 %			100 %
Downside: scam	2	100 %			100 %
Downside: social & emotional danger	8	77,78%	22,22%		100 %
Totals		33,33%	33,33%	33,33%	100 %

Code-Document Table showing an example of an across-group-comparison

The table shows data from a survey with open-ended questions where people evaluate the computer game Minecraft. You can download the project here.

You must read this table from left to right along the rows. It shows the distribution of the selected codes across the following three document groups:

- parents who do not play Minecraft themselves
- parents who play
- player, who are not also parents

A quick glance of the heat map indicates that people who play (parents or others) mention more benefits than parents who do not play. The latter group appears more concerned with the downsides of playing a computer game, especially with the social and emotional dangers. Players mention very few downsides.

Whether you need to select row or column relative frequencies depends on which way around the table is displayed. If documents/document groups are listed as rows and the codes as columns, you use row relative frequencies for a within group comparison.

Within Group Comparisons: Column Relative Frequencies

The following example is from the sample project: Children & Happiness. Compared are in what kind of relations the readers wrote about positive and negative experience of parenthood.

	3 3_Parenting blog: reader comments 273	4 4_NYTM: reader comments 99	Totals
Negative effects of parenting 7 42	37,50%	57,14%	47,32%
Positive effects of parenting 6 41	62,50%	42,86%	52,68%
Totals	100 %	100 %	100 %

As can be seen from the table, the readers from the parenting block write relatively speaking more about positive aspects of parenting as compared to the readers of the NYTM article.

Total Relative Frequencies

If you select total relative frequencies, the calculation is based on the total number of codings of all selected codes in the table. Below it is compared who has provided more or fewer reasons for having or not having children:

	3 3_Parenting blog: reader comments 273	4 4_NYTM: reader comments 99	Totals
contra 38	9,00 9,57%	22,263 23,68%	31,263 33,26%
pro 81	38,00 40,43%	24,737 26,32%	62,737 66,74%
Totals	47,00 50,00%	47,00 50,00%	94,00 100 %

Example application of total relative frequencies

Readers of the parenting blog have given 38 / 94 = 40,43% of the reasons for having children and 9/94 = 9.57% of the reasons for not having children

Readers of the NYTM article have contributed 24,7/94=26,32% of the reasons for having children and 22,26/94=23,68% of the reasons for not having children (the data have been normalized).

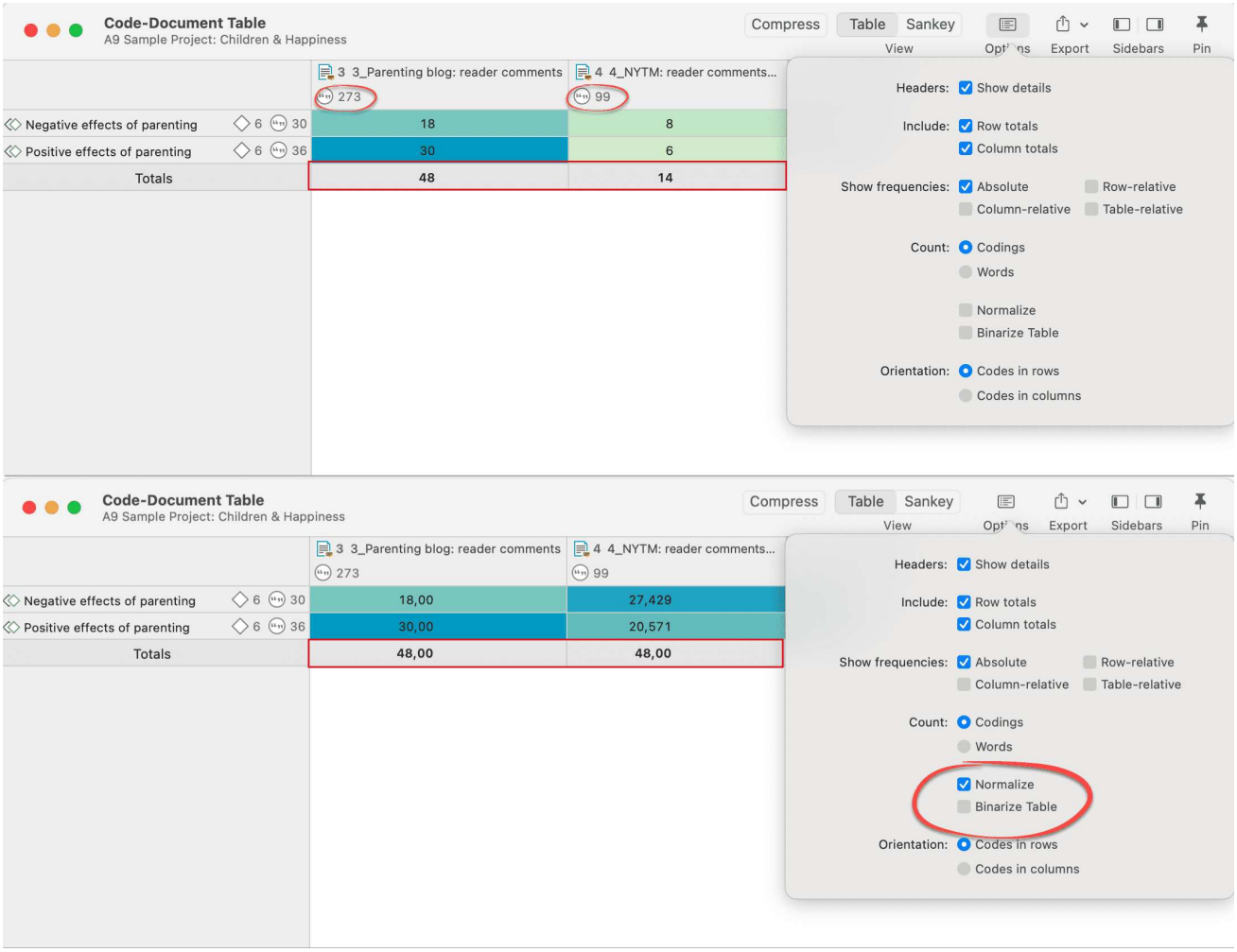
Thus, comparatively, the readers of the NYTM articles have given quite a few more reasons for not having children, which fits the results reported above that they also wrote more about negative effects of parenting.

You can display all values: absolute frequencies and all relative frequencies in one table by selecting all options. It depends on the purpose for which you want to use the table. For interpreting the data, it is probably easier if you look at each of the relative frequency counts separately. For a comprehensive report for an appendix, you may want to export the table with all options included.

Code-Document Table: Normalization

If documents are of unequal length, or document groups of unequal size, the absolute frequencies might be misleading as a measure of comparison. If you conduct interviews, and some interviews are only half an hour long and others 2 hours, the chance someone talks about certain issues and how often during the interview is higher in the long interviews. Thus, if you were to compare absolute numbers, the results might just reflect the different durations of the interviews. The same applies if you analyse reports. If one report is 25 pages long and another 100 and the full reports are coded, absolute frequencies are not a valid measure for comparison. The total number of quotations in a document, or a group of documents (see first row) can help you to decide whether normalization of the data is appropriate.

If you normalize the data the number of codings are adjusted. As benchmark, the document / document group column or row with the highest total is used. The images below show an example.



The number of quotations in each document is very different, 273 vs. 99. In fact document 3 is also three times as long as document 4. Therefore, it is not surprising that it contains more quotations. Interpreting the numerical results based on absolute numbers would be misleading. When normalizing the data, the quotation count for the selected code for the document with the lower number of quotations is adjusted; here by the factor 48/14 = 3,428 (rounded at the third digit).

As you can see from the table with the normalized data, this changes the results and also the interpretation. As you don't have to rely on the numbers when working with ATLAS.ti, you can click on each cell and read the data behind it, before you then write up the results in a memo.

As normalization often results in uneven numbers, it is useful to work with relative rather than absolute frequencies. See Relative Frequencies.

Binarize the Results of a Code-Document Table

At times, you might only be interested to see whether a code occurs in a document or not.

To activate this option, click on the **wheel** icon and select **Binarize Table**.

Code-Document Table with binarized data The table will show **black dots** if a code or codes from a code group have been applied to a document or document group. If it has not been applied, the cell is empty.

The row and column **totals** count the number of yes / no occurrences. Such a table can for instance be used for discriminant analysis in a statistical program.

If you **export** the table to Excel, the Excel table shows 1s and 0s. This allows, for example, a discriminant analysis to be carried out in a statistical program.

Table exported to Excel:

	A	B	C	D	E
1		Evaluation: negative Gr=16; GS=2	Evaluation: Positive Gr=110; GS=21	Evaluation: positive with limitations Gr=106; GS=15	Totals
2	benefit: building things Gr=18	0	1	1	2
3	benefit: collaboration Gr=7	0	1	1	2
4	Benefit: creative Gr=17	0	1	1	2
5	benefit: educational Gr=15	0	1	1	2
6	benefit: skill development Gr=13	0	1	1	2
7	downside: dangerous / distractive Gr=3	1	0	0	1
8	downside: game can be boring Gr=2	0	1	0	1
9	downside: griefers Gr=3	1	0	1	2
10	downside: scam Gr=2	1	1	0	2
11	downside: emotional danger Gr=8	1	1	1	3
12	Totals	4	8	7	19

Visualizing the Code-Document Table

Sankey Diagram

Data Visualization is a great way to simplify the complexity of understanding relationships among data. The Sankey Diagram is one such powerful technique to visualize the association of data elements. Originally, Sankey diagrams were named after Irish Captain Matthew Henry Phineas Riall Sankey, who used this type of diagram in 1898 in a classic figure showing the energy efficiency of a steam engine. Today, Sankey diagrams are used for presenting data flows and data connections across various disciplines.

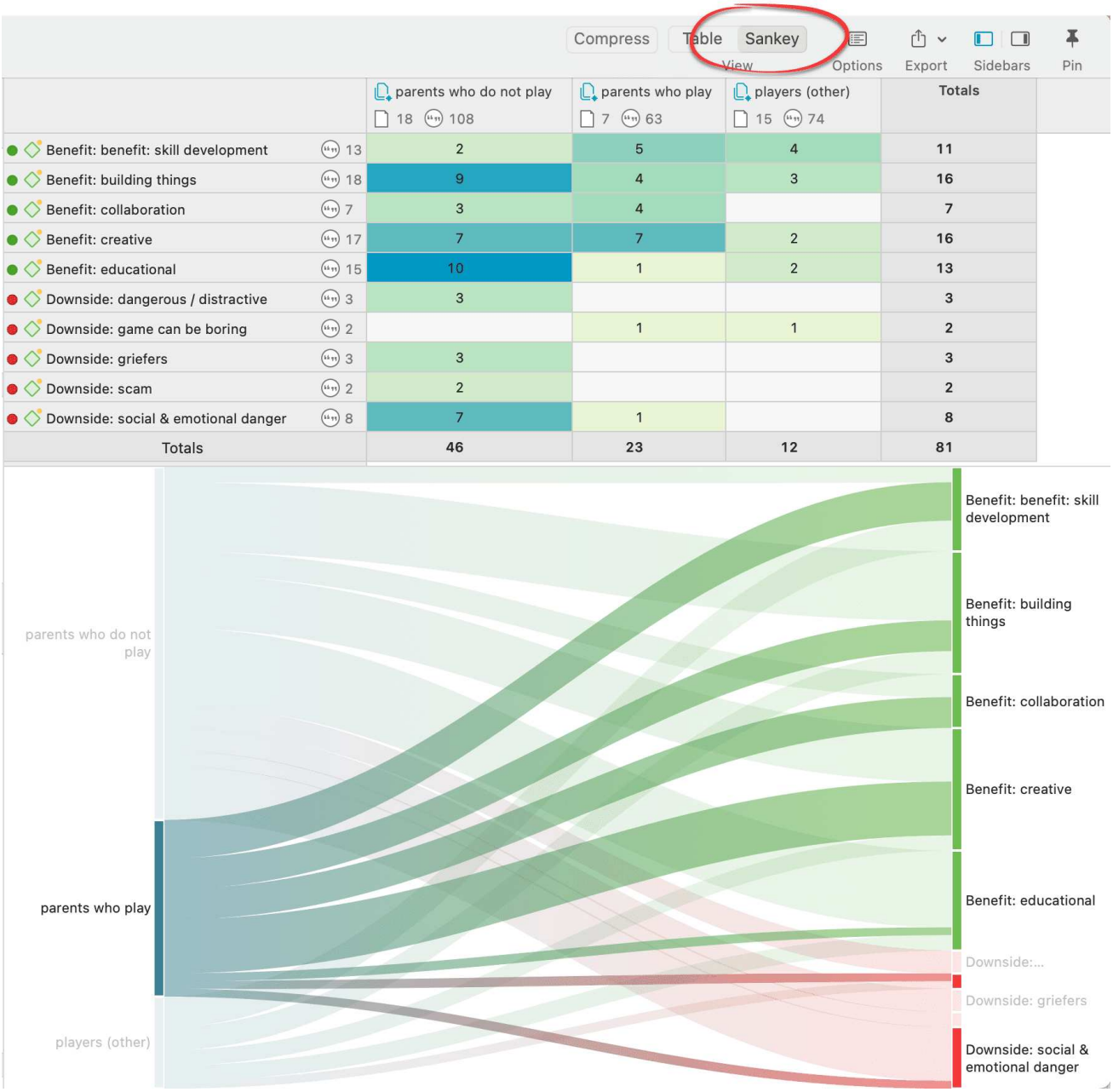
- Sankey diagrams allow you to show complex processes visually, with a focus on a single aspect or resource that you want to highlight.
- They offer the added benefit of supporting multiple viewing levels. Viewers can get a high level view, see specific details, or generate interactive views.
- Sankey diagrams make dominant factors stand out, and they help you to see the relative magnitudes and/or areas with the largest contributions.

In ATLAS.ti, the Sankey diagram complements the Code Co-occurrence Table. As soon as you create a table, a Sankey diagram visualizing the data will be shown below the table.

Further Reading

- Using sankey diagrams to tell a story with data
- Visualizing customer journey with sankey diagram
- A sankey diagram says more than a 1000 pie charts
- What, Why and How of sankey diagrams
- Using colors effectively in sankey diagrams

As soon as you create the Code-Document Table, a bar chart will be shown in the area below the table. To see a Sankey Diagram instead, click on the **Sankey** button in the toolbar.



The row and column entities of the table are represented in the Sankey model as **nodes** and **edges**, showing the strength of co-occurrence between the pairs of nodes. In the Code-Document Table, the connecting pairs can consist of:

- codes - documents
- codes - document groups
- code groups - documents
- code groups - document groups

Edge: For each table cell containing a value, an edge is displayed between the diagram nodes. The thickness of the edges resemble the cell values of the table. Cells with value 0 are not displayed in the Sankey view.

> The key to reading and interpreting Sankey Diagrams is to remember that the width is proportional to the quantity represented.

Layout

The Sankey diagram, similar to the network editor, applies a layout for its nodes and consequently to the edges connecting nodes to create an easy to comprehend visualization of the data. This basic layout places the selected entities (nodes in Sankey terminology) into vertical „layers“ with the row entities placed to the left and the column entities to the right. If nodes have incoming as well as outgoing links in the currently visible set of nodes, they will be placed in intermediate lanes or layers.

Interactivity

- To display the quotations that are responsible for the co-occurrence of two entities, click on the connecting edge. This has the same effect as clicking a table cell. You see the quotations displayed in the Quotation Reader to the right.
- If you hover an edge with your mouse, the numbers that you also see in the table cells are shown. Be default, these are the number of codings in the selected document or document group.

- To support finding the correct link, moving the mouse highlights the hovered edges. After selecting an edge, the unselected edges are dimmed to further increase the visibility of the edge under consideration.
- Selecting a node will highlight this node as well as all its incoming and outgoing edges. This makes it easy to spot areas of connectivity.

Removing edges

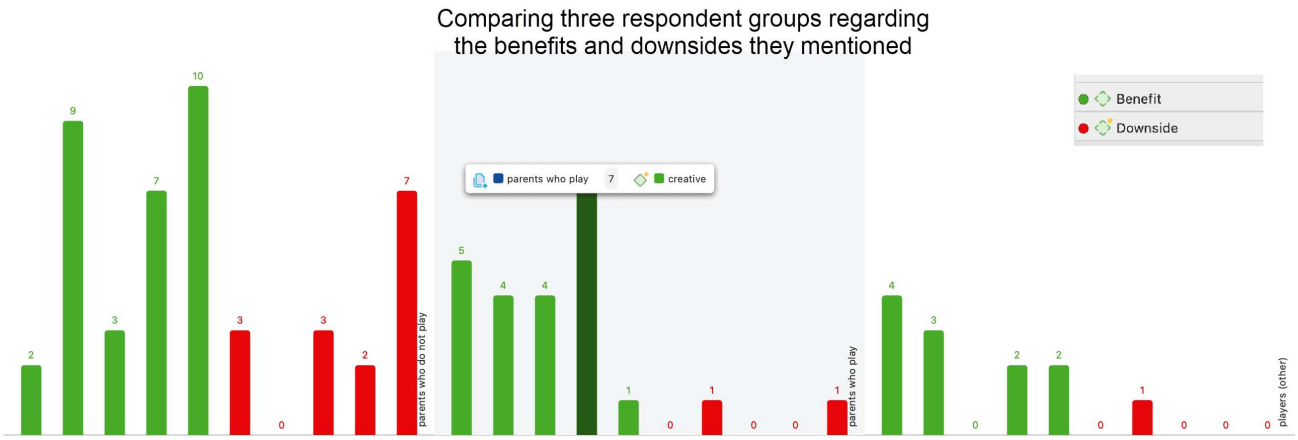
> To remove a node from the diagram, right-click and select **Remove from View**.

In addition to the Remove from View options, a number of other options are available from the context menu, like for instance to change the code color.

The same may be accomplished by modifying the selection lists, but this is a bit „heavier“, and it may not be clear which entities need to be deselected.

Bar Chart

As soon as you create a Code-Document Table, a bar chart will be shown in the area below the table.

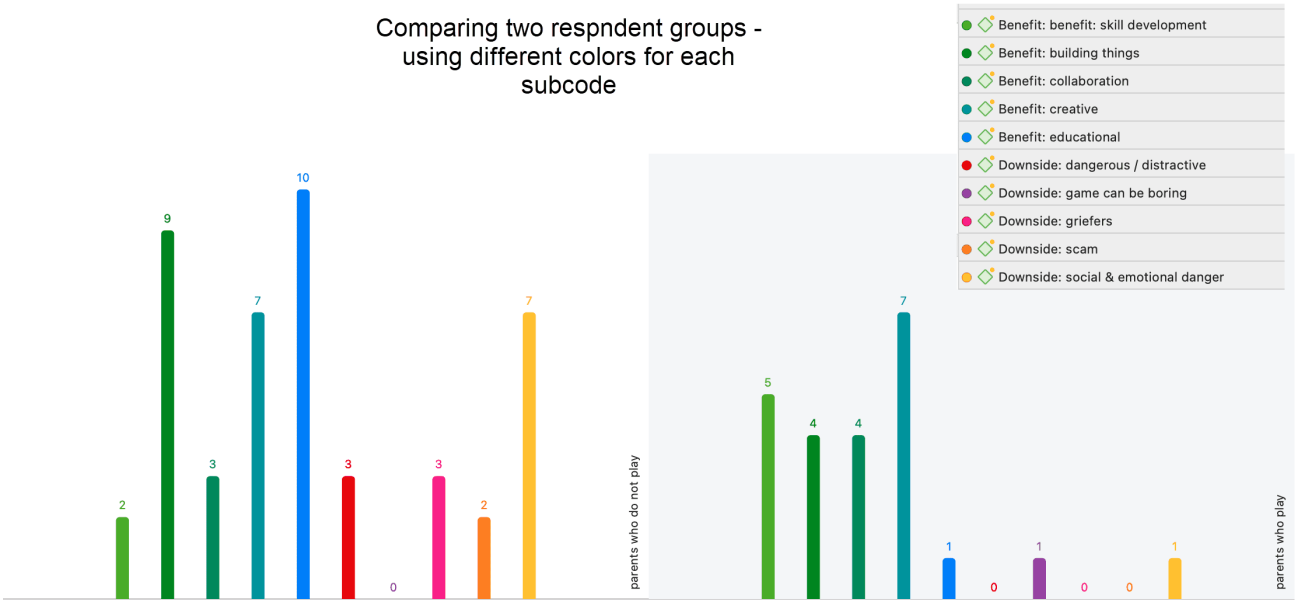


If you hoover over a bar, the code (code group) - document (document group) pair will be shown.

For the visualization as bar chart, it is often preferable to change the code colors. You may also want to switch around the rows and the columns. You find this option in the ribbon of the Code-Document Table.

.

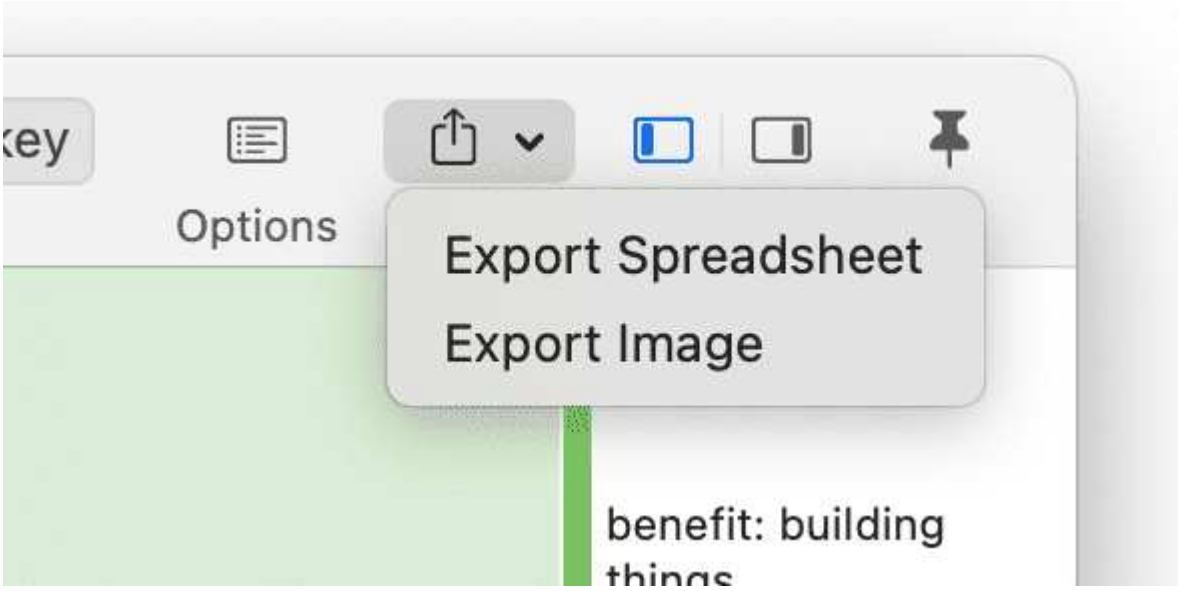
The table below shows the same comparison as above, only this time each subcode was given a different color. The subcodes for benefits range from green to blue; the subcodes for downside are red to yellow.



There is currently no legend. The one you see in the images are copy & pasted screenshots. Also, the code colours have to be changed manually. For a more convenient work with the graphics there will be further options in future updates.

Export as Image

> To save the Sankey diagram as image, click on the **Export** icon in the upper right-hand corner and select the option **Export Image.** The Sankey diagram will be saved in png format.



Code Co-Occurrence Tools

The **co-occurrence tools** search for codes that have been applied either to the same quotation or to overlapping quotations. Using these tools you can find out which topics are mentioned together or close to each other.

The **co-occur** operator is a combination of the WITHIN, ENCLOSES, OVERLAPS, OVERLAPPED BY and the AND operator.

By default, the table searches for all co-occurrence, but you can also ask more specifically only for AND occurrences. An 'AND' occurrence means that two codes code exactly the same quotation.

See available operators for further information.

The results depend on how you have coded the data. If you want to examine the proximity of certain issues, then you have to code overlapping segments, or create one quotation and apply multiple codes.

> If issues that you want to code occur very close to each other in the data, the recommendation is to create one quotation and apply two or more codes to it. If these issues are spread over a long paragraph or section, the recommendation is to create multiple overlapping quotations so that the precision of coding is higher.

The Code Co-Occurrence Table

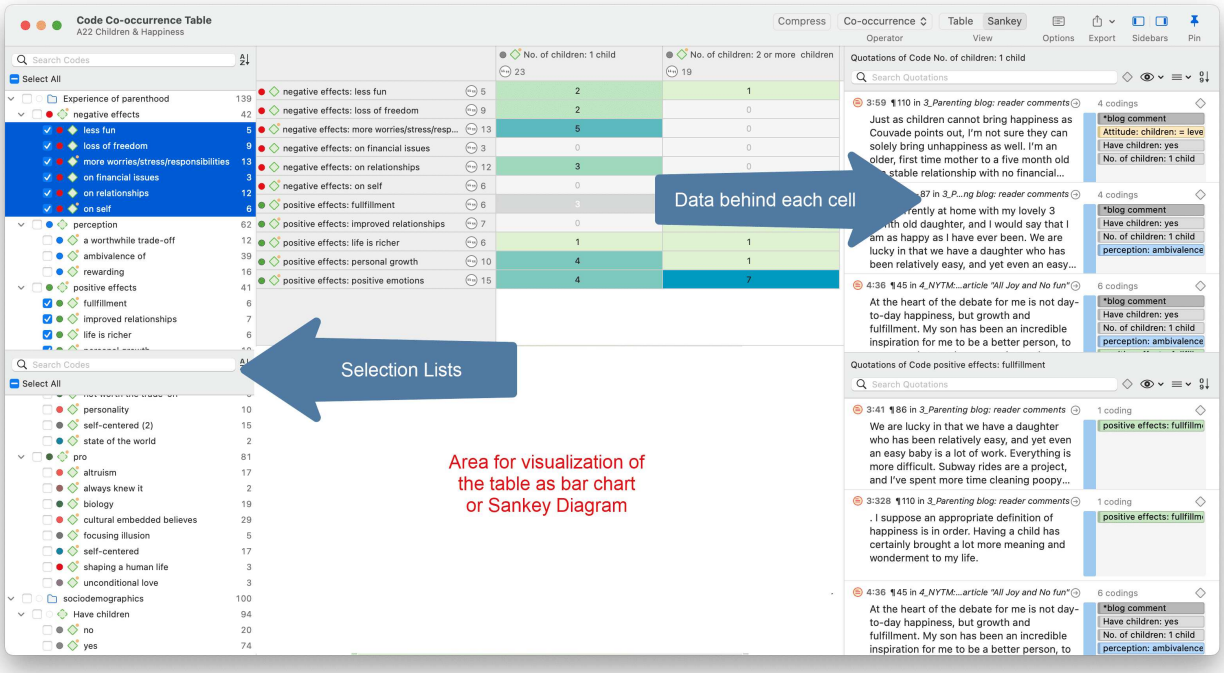
The Co-occurrence analysis tool shows the frequencies of co-occurrence in a multitude of ways, for instance a matrix similar to a correlation matrix that you may know from statistical software, a Sankey diagram, or a force-directed graph.

The aim is to relate codes to each other that have been applied either to the same quotations or to overlapping quotations. You can find out which topics are mentioned together or are in proximity to each other. Thus, the results depend on how you have coded the data.

> To open the tool, select **Analysis** > **Code Co-occurrence Table**.

> Select one or multiple codes from the first list for table columns, and from the second list for the table rows. You can switch around the rows and codes after the table has been created (see Options).

To select an item, you need to click the check-box in front of it. It is also possible to select multiple items via the standard selection techniques using the cmd or shift keys. After highlighting multiple items, push the **space bar** to activate the checkboxes of all selected items.



> You can also inspect co-occurrences from anywhere in the app by right-clicking codes and selecting one of the co-occurrence options in the Analysis submenu. This will open the same tool as described here, and make the appropriate selections.

You can switch view modes in the toolbar at the top. Different visualizations lend themselves to different analysis tasks, so play around with them.

The table approach reduces the analysis to a pairwise comparison. If you need a higher order co-occurrence you can use the category codes instead of the subcodes.

If you want to compare code co-occurrences within subsets of your data, you can set a document group as global filter

How to Read the Table

- First column / first row: The number below and behind each code shows how often the code is applied the entire project. This helps you to better evaluate the number of co-occurrences in the table cells.
- The number in the cell indicates the number of hits, how often the two code co-occur. This means that the number of co-occurring „events" and not the number of quotations are counted. If a single quotation is coded by two codes or if two overlapping quotations are coded by two codes, this counts in both cases as a single co-occurrence.
- If you click on a cell, the quotations of the corresponding row and column codes are displayed next to the table in the Quotation Reader. The quotation reader here always displays two lists of quotations: the quotations of the column code, and the quotations of the row code.

Code Co-Occurrence Table Toolbar

Compress: This is a quick way to remove all rows or columns that only show empty cells. This is the same as manually deactivating codes that yield no results. Thus, you cannot *decompress* a table!

Operator: You can switch between the Co-occur and the AND operator. If the table cells should only show a result if the quotations overlap 100%, thus the two codes code exactly the same data segment, then select AND.

View Mode:

Table: Switch the view to show a table or matrix of co-occurrences.

Sankey: Switch view to a Sankey Diagram. See more in the chapter on co-occurrence visualization.

Bar Chart: View co-occurrences as a bar chart. See more in the chapter on co-occurrence visualization.

Force-Directed Graph: View co-occurrences as an interactive force-directed graph. See more in the chapter on co-occurrence visualization.

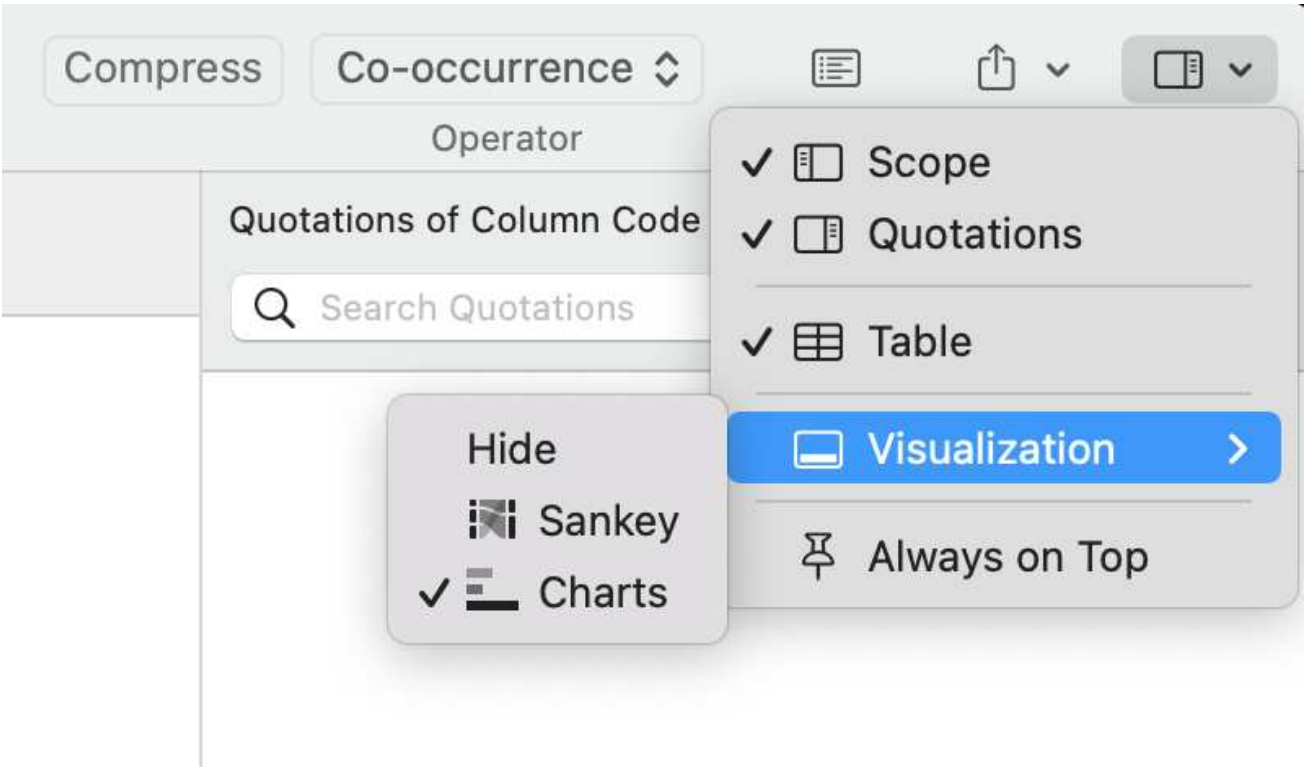
Options: See below.

Export: You can export the table as an Excel spreadsheet, or an image of the currently active visualization (including the table).

Table Export:

- If **Show Count** is selected, only the number of co-occurrences are exported.
- If **Show Coefficient** is selected, only the c-coefficient and not the absolute number of hits are exported.
- If you have selected both, both are exported.

Code Co-Occurrence Layout Options



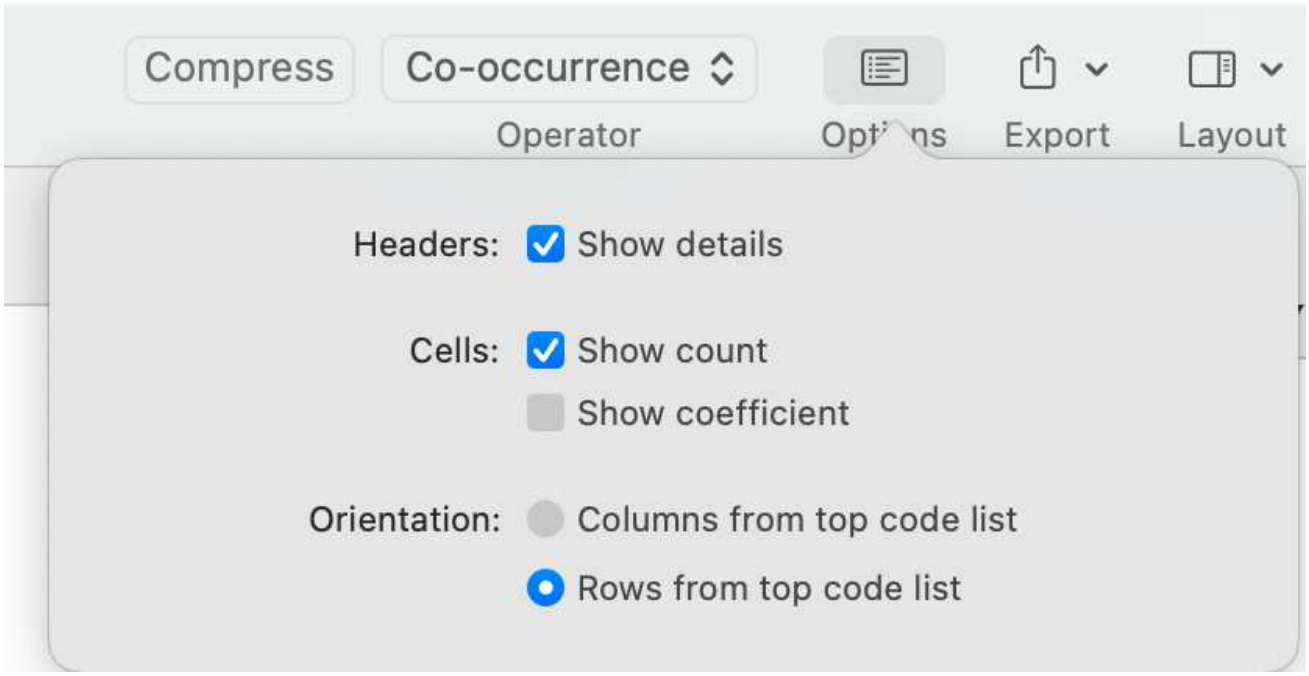
If you need more space on your screen, you can hide the two lists on the right- and left-hand side (scope and quotations).

If you want more room for the visualizations, you can hide the table.

The table visualization is available as Sankey diagram or barchart.

Code Co-Occurrence Table Options

> To access the options, click the **options** button.



Show Details: If activated, you see the total number of times the code has been applied to a quotation. This helps you to better evaluate the numbers in each cell. The interpretation is likely different if the number of hits is 10 and if each of the codes have been applied 50 or only 15 times.

Show Count: The count shows the number of times two codes co-occur.

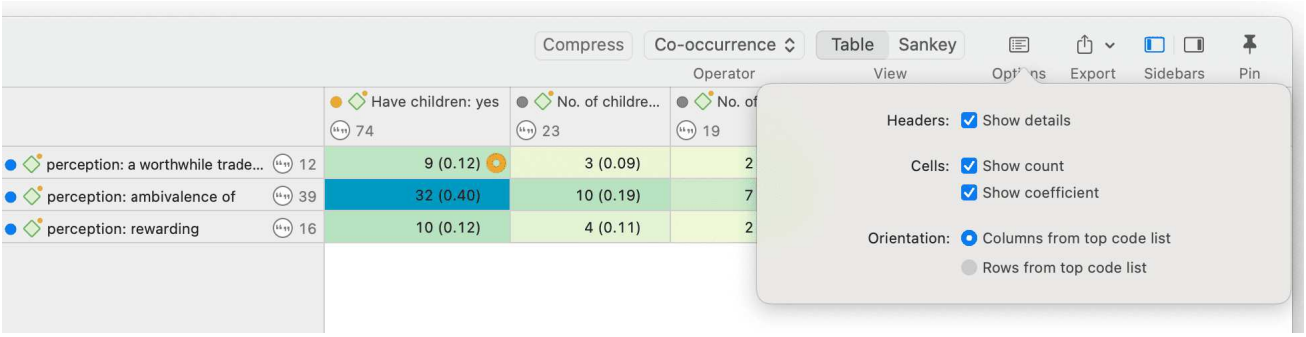
Show Coefficient: The c-coefficient gives an indication of the strength of the relationship between a pair of codes. See C-Coefficient for more detail.

Orientation: You can switch which codes are displayed as rows and columns: columns from top code list, or rows from top code list.

Code Co-occurrence Coefficient

The c-coefficient indicates the strength of the relation between two codes.

> To activate the c-coefficient, click on **options**.



The **range** of the c-coefficient is between 0 and 1:

- 0 mean codes do not co-occur
- 1 means these two codes co-occur wherever they are used

The **calculation** of the c-coefficient is based on approaches borrowed from quantitative content analysis. It is calculated as follows:

c = n12 / (n1 + n2 - n12)

n12 = number of co-occurrences for code n1 and n2

The c-coefficient is useful when working with larger amounts of cases and structured data like open-ended questions from surveys. If you use the c-index, pay attention to the additional colored hints. As your database is qualitative, the c-coefficient is not the same as for instance a Pearson correlation coefficient and therefore also no p-values are provided.

Distortion due to unequal frequencies

An inherent issue with the c-index and similar measures is that it is distorted by code frequencies that differ too much. In such cases the coefficient tends to be much smaller than the potential significance of the co-occurrence. For instance, if you had coded 100 quotations with code 'A' and 10 with code 'B', and you have 5 co-occurrences, then the c-coefficient is:

c = 5/(100 + 10 - 5) = 5/105 = 0.048

A coefficient of only 0.048 may slip your eye easily, although code B appears in 50% of all its applications with code A.

If one of the codes of one pair has been applied more than 5 times than the other code, **a yellow dot appears** in the top right of the table cell. So whenever a cell shows the yellow marker, it should invite you to look into the co-occurrences of this cell despite a low coefficient.

Out of Range

The c-index assumes separate non-overlapping text entities. Only then can we expect a correct range of values.

The coefficient can exceed the 0 - 1 range it is supposed to stay with, if there is redundant coding. Let's take a look at the following example:

- A quotation 1 is coded with codes A and B
- an overlapping quotation 2 is coded with Code B.

Then quotation 1 counts for 1 co-occurrence event and the overlapping quotation 2 for another. This results in a value of twice the allowed maximum:

c = 2/(1 + 2 - 2) = 2

All cells displaying an out-of-range number (> 1) show a red dot in the top right corner.

In case the c-coefficient exceeds 1, you need to do some cleaning-up and eliminate the redundant codes. See Finding Redundant Codings .

Summary of Color Indicators

Yellow dot: Unequal quotation frequencies - the ration between the frequencies of the code and row code exceeds the threshold of 5.

Red dot: The C-index exceeds the 0 - 1 range.

Orange dot: The orange dot is simply a mixture of the red and yellow conditions.

Visualizing the Code Co-Occurrence Table

ATLAS.ti can present your co-occurrences in multiple ways, from a table view to the playful force-directed graph. While all of these visualization options present the same data, they lend themselves to different analysis and exploration tasks, and of course can also be used to illustrate your findings. And of course, they are not just pretty pictures, but fully interactive.

We invite you to play around with the different view modes, and switch between them frequently. Different aspects of your data may stand out to you depending on the chosen visualization.

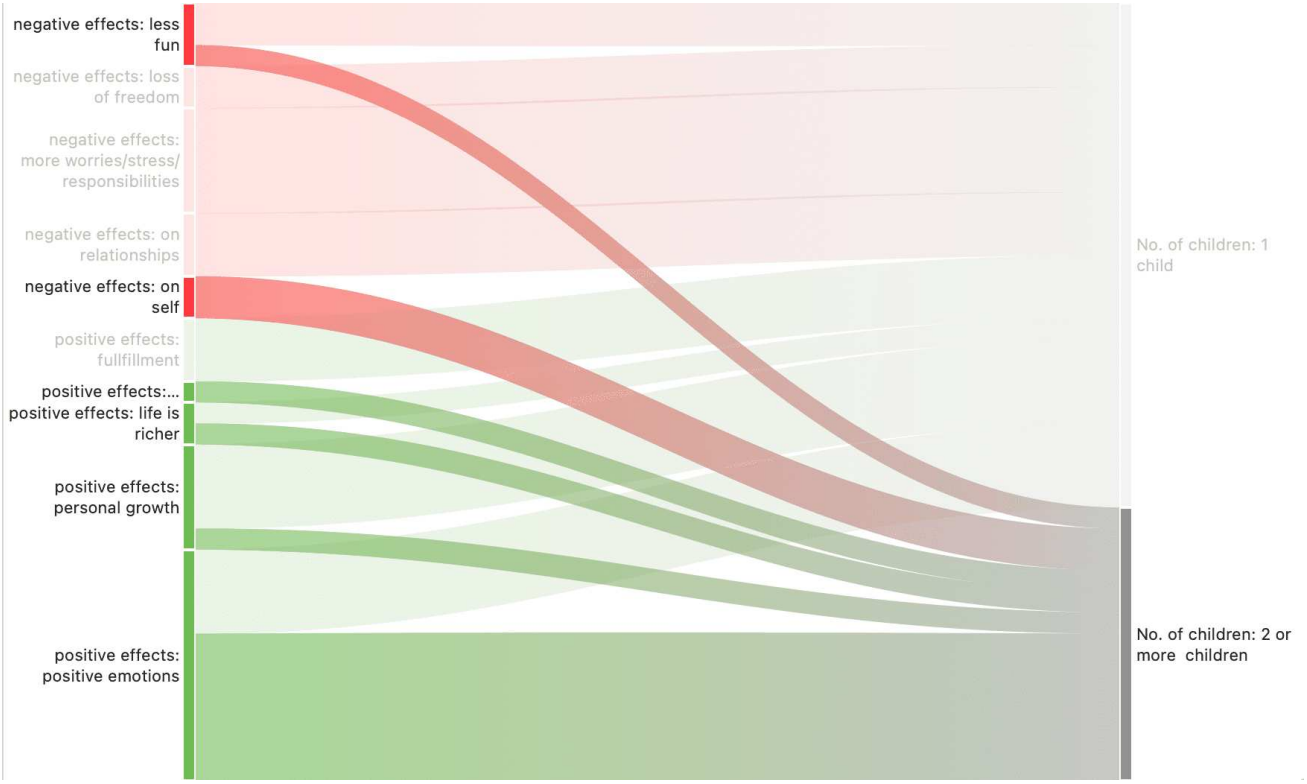
You can switch view modes in the toolbar at the top. Different visualizations lend themselves to different analysis tasks, so play around with them.

Table

So familiar is the table with rows and columns that we hardly think of it as a visualization anymore. A very easy-to-understand and clear way to present the data, if maybe a little dry. The table view is the only one that can show the coefficient and sum up all the co-occurrences for each code. You can export the table as an Excel spreadsheet.

Sankey Diagram

Sankey diagrams are named after Irish captain Matthew Henry Phineas Riall Sankey, who used this type of diagram in 1898 in a classic figure showing the energy efficiency of a steam engine. Today, Sankey diagrams are used for presenting data flows and data connections across various disciplines. The Sankey diagram can be exported as an image.



The row and column entities of the table are represented in the Sankey model as **nodes** and **edges**, showing the strength of co-occurrence between the pairs of nodes. In the Code Co-occurrence table, the connecting pairs are codes for both rows and columns.

Edge: For each table cell containing a value, an edge is displayed between the diagram nodes. The thickness of the edges resemble the cell values of the table. Cells with value 0 are not displayed in the Sankey view.

> The key to reading and interpreting Sankey Diagrams is to remember that the width is proportional to the quantity represented.

Layout

The Sankey diagram, similar to the network editor, applies a layout for its nodes and consequently to the edges connecting nodes to create an easy to comprehend visualization of the data. This basic layout places the selected entities (nodes in Sankey terminology) into vertical „layers“ with the row entities placed to the left and the column entities to the right. If nodes have incoming as well as outgoing links in the currently visible set of nodes, they will be placed in intermediate lanes or layers.

Interactivity

- To display the quotations that are responsible for the co-occurrence of two entities, click on the connecting edge. This has the same effect as clicking a table cell. You see the quotations displayed in the Quotation Reader to the right.
- If you hover over an edge, you see the number that is also displayed in the table cell, which are the number of times the pair of codes co-occur.
- To support finding the correct link, moving the mouse highlights the hovered edges. After selecting an edge, the unselected edges are dimmed to further increase the visibility of the edge under consideration.
- Selecting a node will highlight this node as well as all its incoming and outgoing edges. This makes it easy to spot areas of connectivity.

Removing edges

> To remove a node from the diagram, right-click and select **Remove from View**.

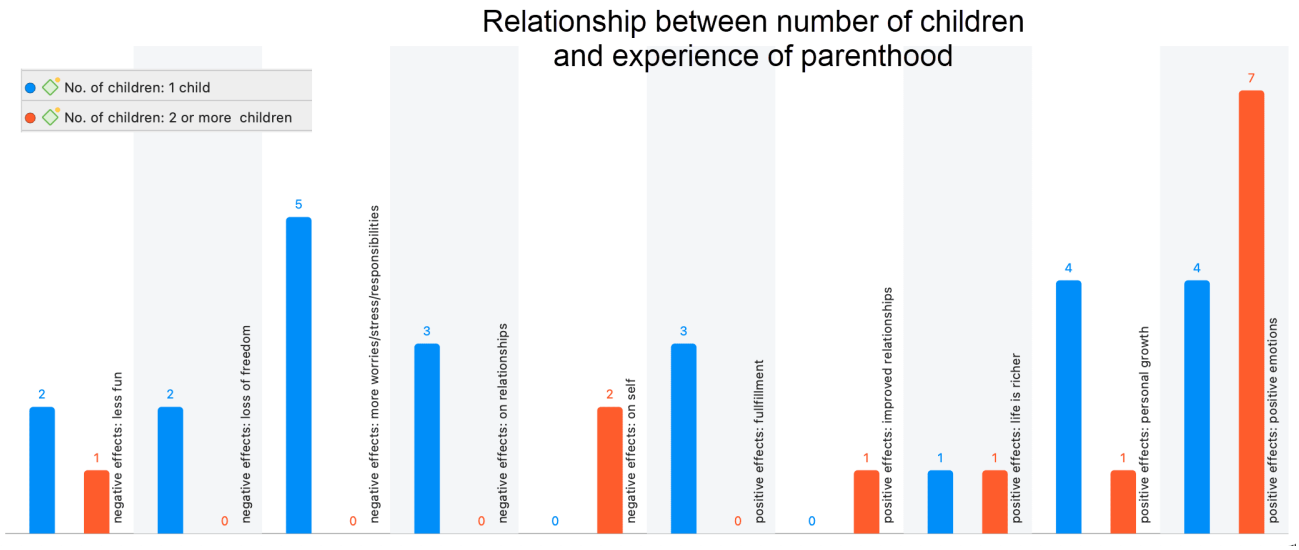
In addition to the Remove from View options, a number of other options are available from the context menu, like for instance to change the code color.

The same may be accomplished by modifying the selection lists, but this is a bit „heavier“, and it may not be clear which entities need to be deselected.

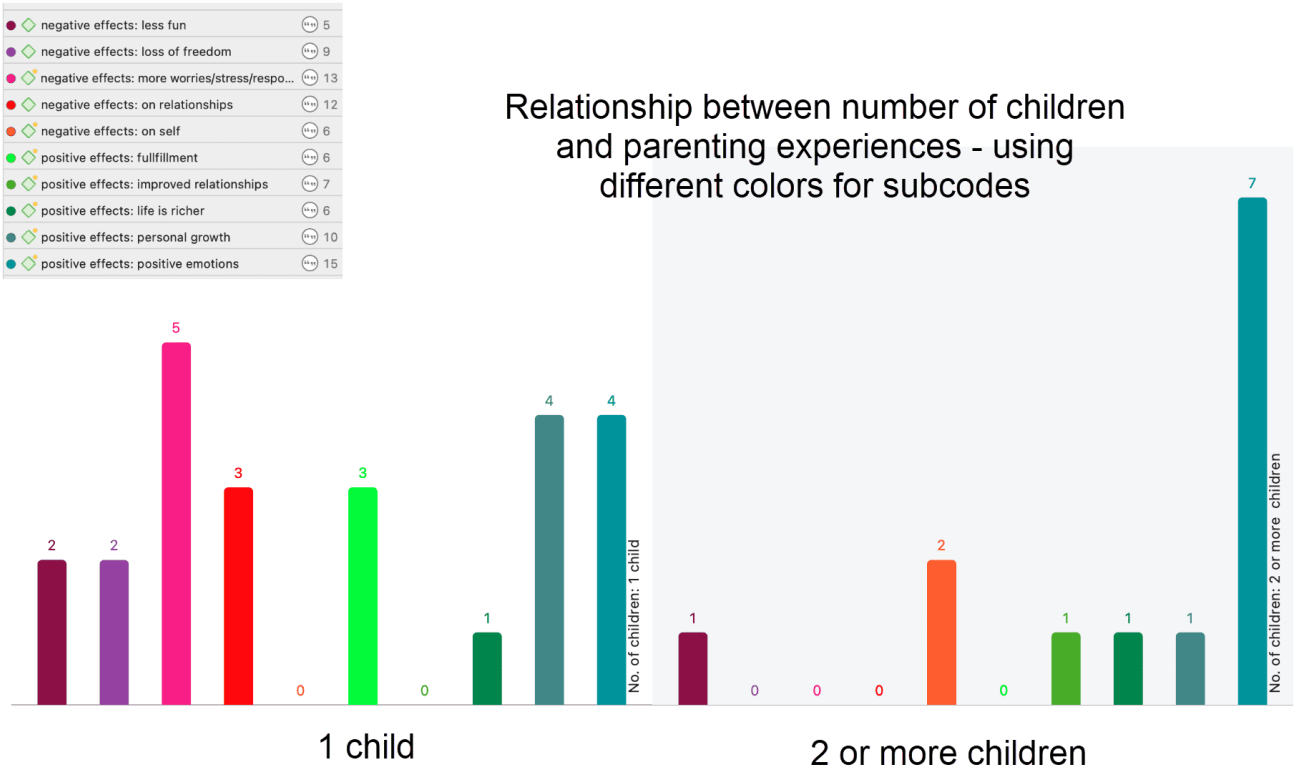
Bar Chart

As soon as you create a Co-occurrence table, a bar chart will be shown in the area below the table. For the visualization as bar chart, it is often preferable to change the code colors. You may also want to switch around the rows and the columns. You find this option in the ribbon of the Code Co-occurrence Table.

To create the table below, the color of the two subcodes '1 child' and '2 or more' were changed to orange and blue. The result is of course the same - for people with two or more children the table shifts significantly to the right towards the codes coding the positive experiences. Or to put it the other way around, for those with one child, both positive and negative experiences are reported with somewhat more emphasis on the negative experiences.



If we change the rows and the columns, so that the number of children is on the x-axis, we get a more meaningful graph if we change the code colors for the subcodes of positive and negative effects. The negative effects have colors ranging from yellow to pink, the colors for positive effect range from green to blue.

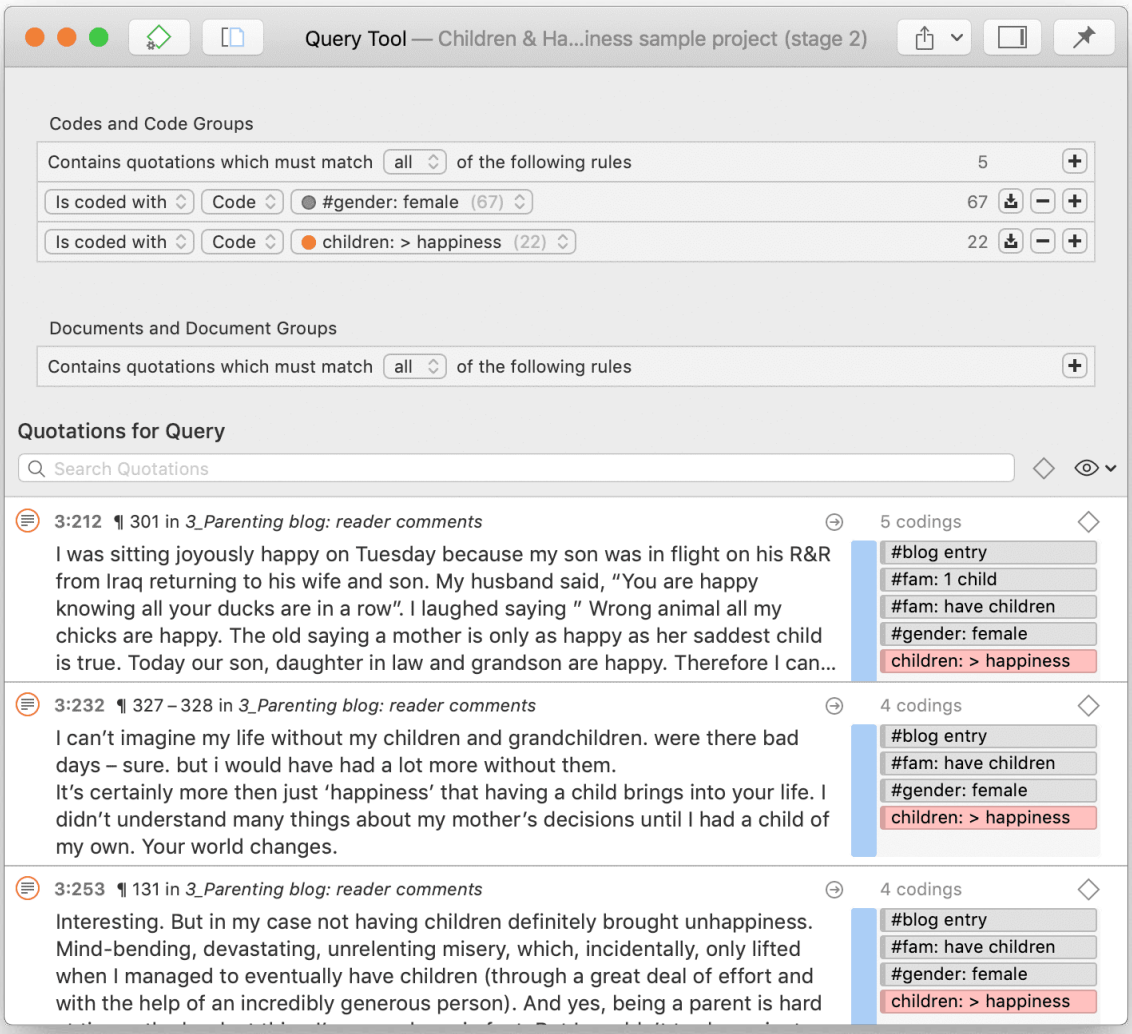


There is currently no legend. The one you see in the images are copy & pasted screenshots. Also, the code colours have to be changed manually. For a more convenient work with the graphics there will be further options in future updates.

Smart and Snapshot Entities

A **smart entity** in ATLAS.ti is always a query. You can create smart entities for codes and groups.

In the Code Manager you can create smart codes using the operator OR. This is useful if you need a combination of two or more codes for data analysis. In the Query Tool, a smart code can be used to store query results.



Smart groups can be created in the Group Managers. They are especially useful for document groups when used as variables. They allow you to create combination of variables.

The reason for naming such codes and groups **smart** is because they change along with your project. If you change any of the codings of a code that is part of a smart code, this will be reflecting in the smart code when retrieving its quotations. If you add or remove documents that are members of the groups that make up a smart group, the smart group retrieves those documents that reflect the current state of your project.

Every time you click on a smart code or smart group, the underlying query is run, and you see the up-to-date results.

A **snapshot entity** turns a smart entity into a regular code or code group. You can think of it like a snapshot you take with a camera - it preserves the current moment. Thus, snapshot entities do no longer change automatically.

What are Smart Codes?

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

- Smart codes automatically change their behavior during the analysis. If you have a smart code based on a query like: (Code A | Code B) COOCCUR Code C), and you add or delete quotations linked to either Code A, B or C, then the smart code will automatically be adjusted.
- As a smart code is a query, it *cannot* be used for coding. For the same reason, smart codes are *not* displayed in the margin area.
- Smart codes are displayed in the Code Manager. They can be recognized by a gray dot at the bottom left of the code icon.
- If you double-click on a smart code, you can retrieve all quotations that are the result of the underlying query.
- You can change the query that is underlying a smart code by editing the query.
- Smart codes can be used in code groups, networks, and, last but not least, as powerful operands in queries, allowing you to incrementally build complex queries.
- Smart codes can be transferred into a regular code by creating a snapshot code.

What you cannot do with Smart Codes

As smart codes are not directly associated with quotations, certain restrictions apply.

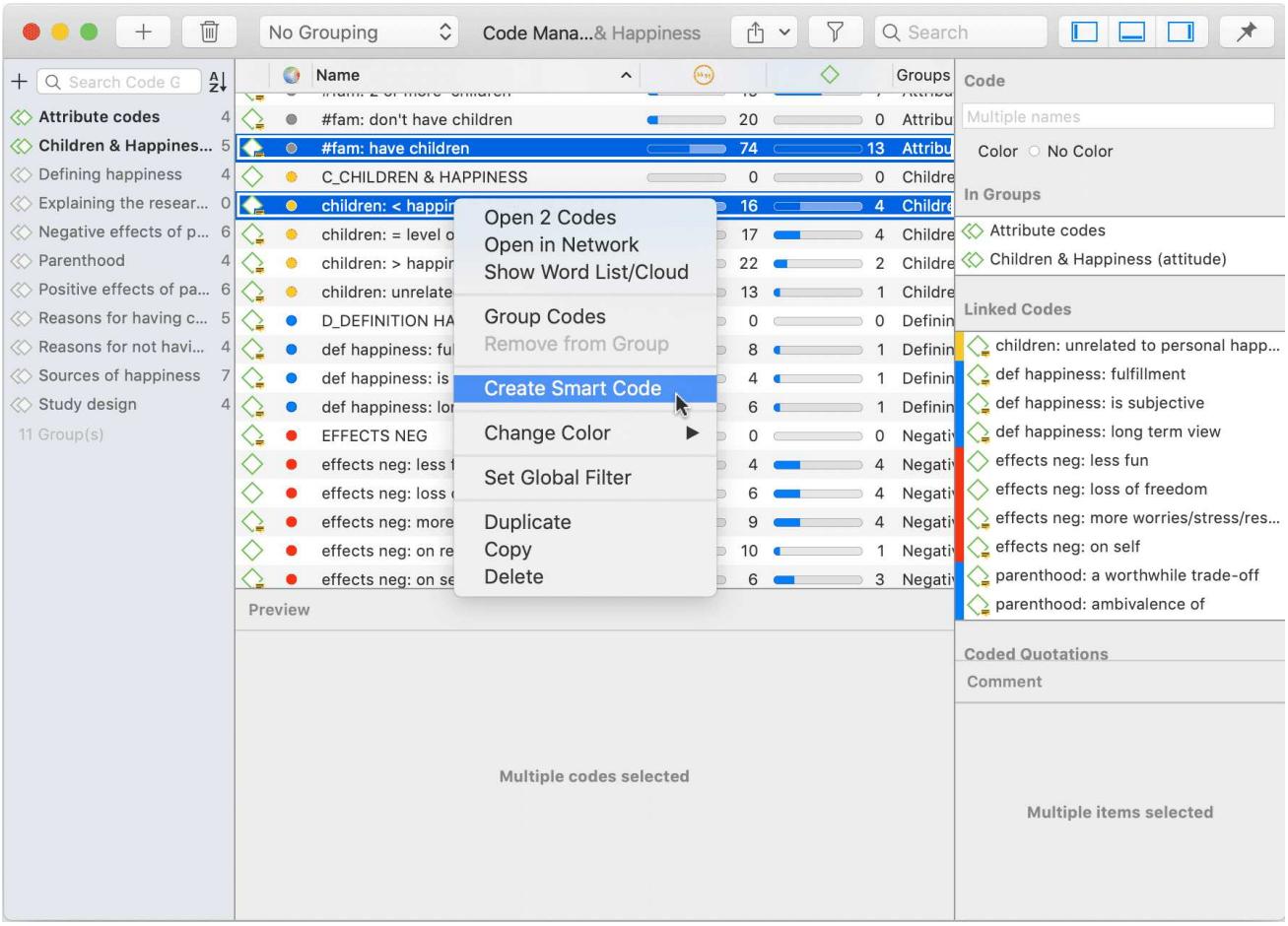
- **Coding:** You cannot link a smart code directly to a quotation. Therefore, smart codes are not shown in the list of codes when coding your data. Drag & drop operations from code lists to other lists are not possible.
- **Merging:** You cannot merge a smart code with other codes.
- You cannot include a code group in the query for the smart code and assign the smart code to this code group later. This would create a cyclical structure and is therefore not allowed.

Working With Smart Codes

Creating an ORed Smart Code in the Code Manager

If you only need a simple OR combination of two or more codes as smart code, the easiest way is to use the Code Manager.

> Open the Code Manager, select two or more codes, right-click and select the **Create Smart Code** option from the context menu.



If you wonder why an OR combination is useful rather than just merging the codes, at times you want to keep the codes as regular codes in the code list. If you merge codes, only the merged codes remains. For example, if you code the speakers in a focus group transcript, you can create smart codes for all male and female speakers without losing the code for each individual speaker. If you add these attributes to each speaker unit, the margin becomes very cluttered. Smart codes are not displayed in the margin.

Creating a Smart Code in the Quotation Manager

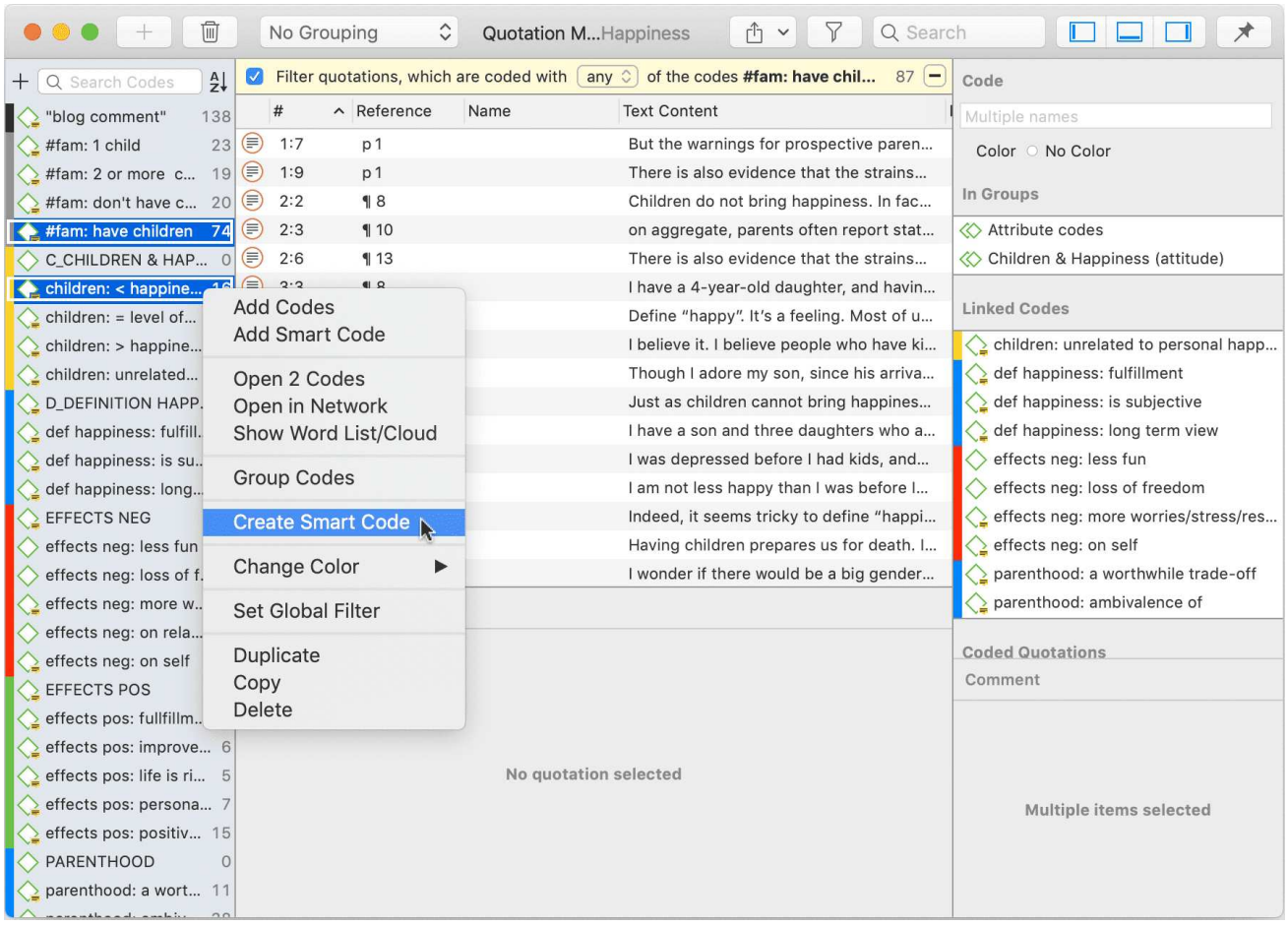
You can also create smart codes in the Quotation Manager. There you can combine codes using the Boolean operators AND and OR. See Available Operators for Querying Data > Boolean Operators.

Use **AND** to:

- narrow your results
- tell the database that **ALL** search terms must apply. This means that the smart code only retrieves quotations that are linked to all codes in the query. In other words, the quotation is coded with multiple codes.

Use **OR** to:

- connect two or more similar concepts
- broaden your results, telling the database that **ANY** of the search terms apply. This means the smart code retrieves all quotations of all codes in the query. It is additive.



> Open the Quotation Manager and select two or more codes in the filter area on the left.

> The default operator in the yellow filter bar above the quotation list is 'ANY'. If you want to change, click on it and select the 'ALL' operator.

> To save the results as smart code, right-click on any of the selected codes and select **Create Smart Code** from the context menu.

> Enter a name and click **Create**.

Creating a Smart Code in the Query Tool

> Open the Query Tool and build a query.

> To save the query, click on the **Smart Code** icon in the toolbar.

Editing a Smart Code

If you want to see the query that is underlying a smart code, of if you want to modify the query, you can edit the smart code.

> Open the Code Manager, select the smart code, right-click and select **Edit Query** from the context menu.

This opens the query tool where you can review and modify the smart code. See How to build a query.

You cannot delete a code, if it is part of a smart code query. If you want to remove a code that is part of a smart code query, you first must delete the smart code. If you do not want to lose the results stored by the smart code, you can turn it into a snapshot code before deleting it.

What are Smart Groups

Smart Groups are very similar in look and feel to normal groups, with one important difference: instead of hardwired connections to their members, smart groups store a query to compute their virtual references whenever needed.

Although also an option for code, memo and network groups, the most common application for smart groups are **smart document groups**. They allow you to combine two or variables. For instance *gender* and *location*. This requires that you have document groups for the basis variables. Here for gender: male and female and for location: urban and rural. If you need the combination of gender and location more often, a good way to do this is to create smart groups:

- female respondents from urban areas
- female respondents from rural areas
- male respondents from urban areas
- male respondents from rural areas

For creating smart groups Boolean operators are used. See Available Operators for Querying Data > Boolean Operators for further information.

A reason for creating a smart group is to apply them as global filter. See Applying Global Filters For Data Analysis. Another application is to add them to a network and display document group - code connections.

Working With Smart Groups

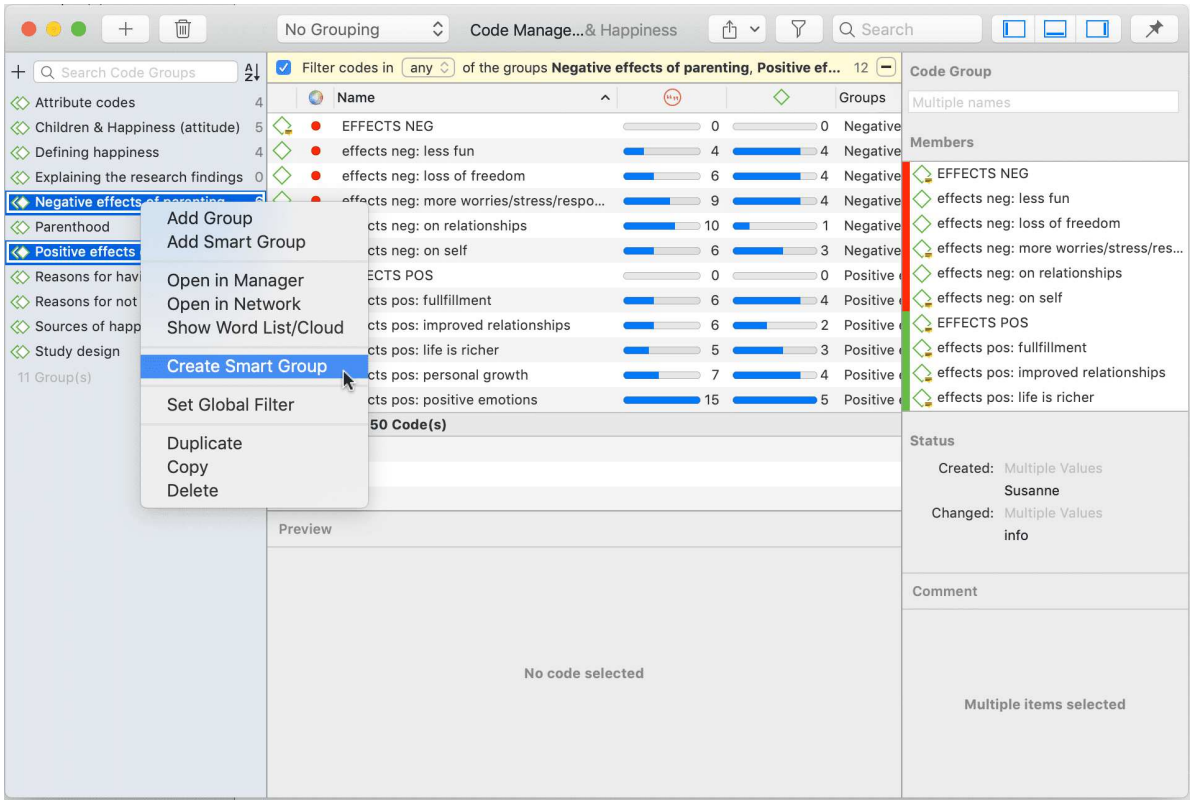
A reason for creating a smart group is to apply them as global filter. See Applying Global Filters For Data Analysis. Another application is to add them to a network and display document group - code connections.

Creating a Smart Group

To create a new smart group, open a Manager and select two or more groups, right-click select **Create New Smart Group** from the context menu.

inst

Accept the default name or modify it, and click **Create**.

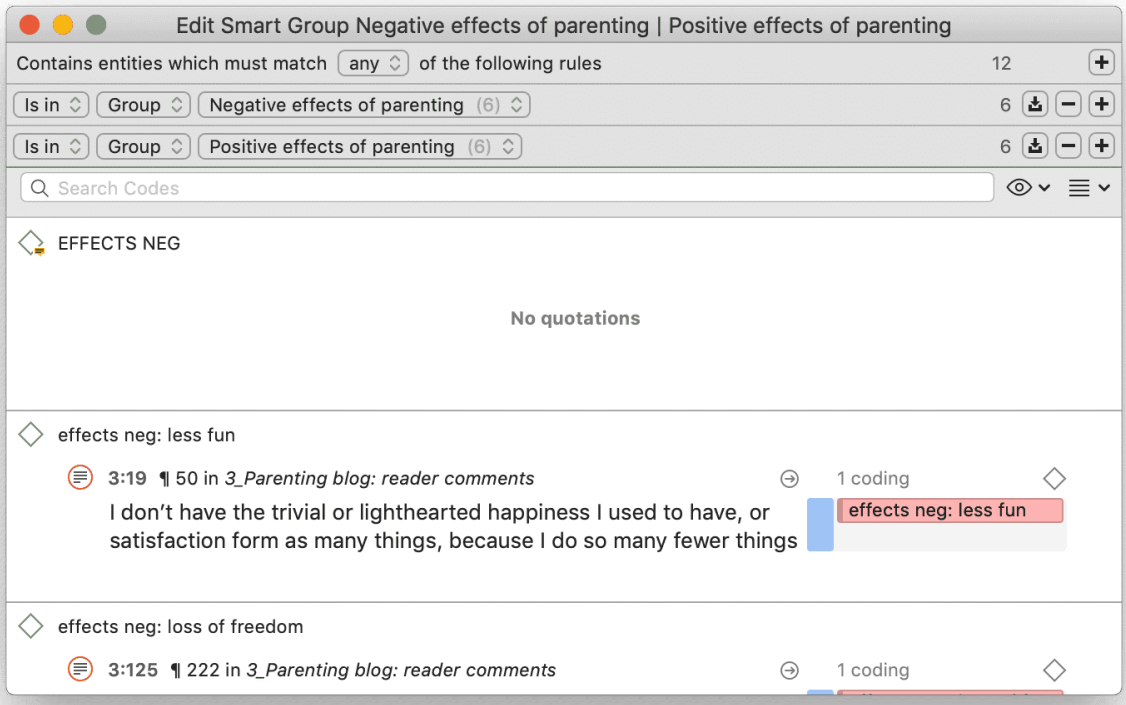


tip

Smart entities can be recognized by the little gray circle at the bottom left of the icon.

Editing a Smart Group

> Open the respective Manager. Select the smart group you want to edit, right-click and select **Edit Query**.
> This opens the Smart Group Editor that looks similar to the query tool.



The following operators are available:

any: combines all selected groups and forms a larger group **all:** creates a smart group consisting of the intersection of the selected groups like 'female respondents from urban areas'. **exactly one:** creates a smart group only containing members that are unique to each group and do not occur in any of the other selected groups. Example: In the sample project *Evaluation of a computer game*, respondents evaluate the game in different ways. If you want to find those respondents who either evaluate the game as being creative or educational (and not both), you can use the **one of** operator.

IMAGE

> See how to build a query for further information on how to understand and modify the query of a smart group.

What are Snapshot Codes and Groups?

Snapshot Codes

A **snapshot code** transforms a smart code into a regular code. This code preserves the current state of a smart code at the moment of its creation, like taking a photograph that captures the moment, and creates direct links to all quotations.

- A snapshot code is displayed in the margin area.
- A snapshot code can be used for coding.

You can create a **snapshot code** from a smart code. This can be useful for data analysis when you build queries.

Another application is to use this option for fixing code systems when code groups have been used as categories. This often leads to underdeveloped code systems, long list of codes and limited use of the further analysis tools. To fix this, you first need to turn all code groups into smart codes using the query tool. Then you create snapshot codes from these smart codes, transforming the code groups into regular codes. In the next step, the members of the code groups can be turned into sub codes by adding prefixes and merged as appropriate. See Building a Code System.

Snapshot Groups

A **snapshot group** transforms a smart group into a regular group. This group preserves the current state of a smart group at the moment of its creation, like taking a photograph that captures the moment, and creates direct links to all members.

Application: It can for example be useful if you want to remove documents from a project that are part of a smart group. As long as they are part of the smart group, this is not possible. In order not to lose the combination of documents as defined by the smart group, you can turn it into a snapshot group, delete the smart group and then delete the document(s) that you no longer want from the project.

Creating Snapshots

You can create snapshots from smart codes and smart groups.

Creating a Snapshot Code

Open the Code Manager, select a smart code, right-click and select **Create Snapshot** from the context menu.
The default name for the snapshot code is the name of the smart code plus the suffix [SN 1]; [SN 2] if you create second snapshot code of the same smart code and so on.

Creating a Snapshot Group

Open the Manager or the Group Manager of the respective entity, right-click and select **Create Snapshot** from the context menu.

Working with Global Filters

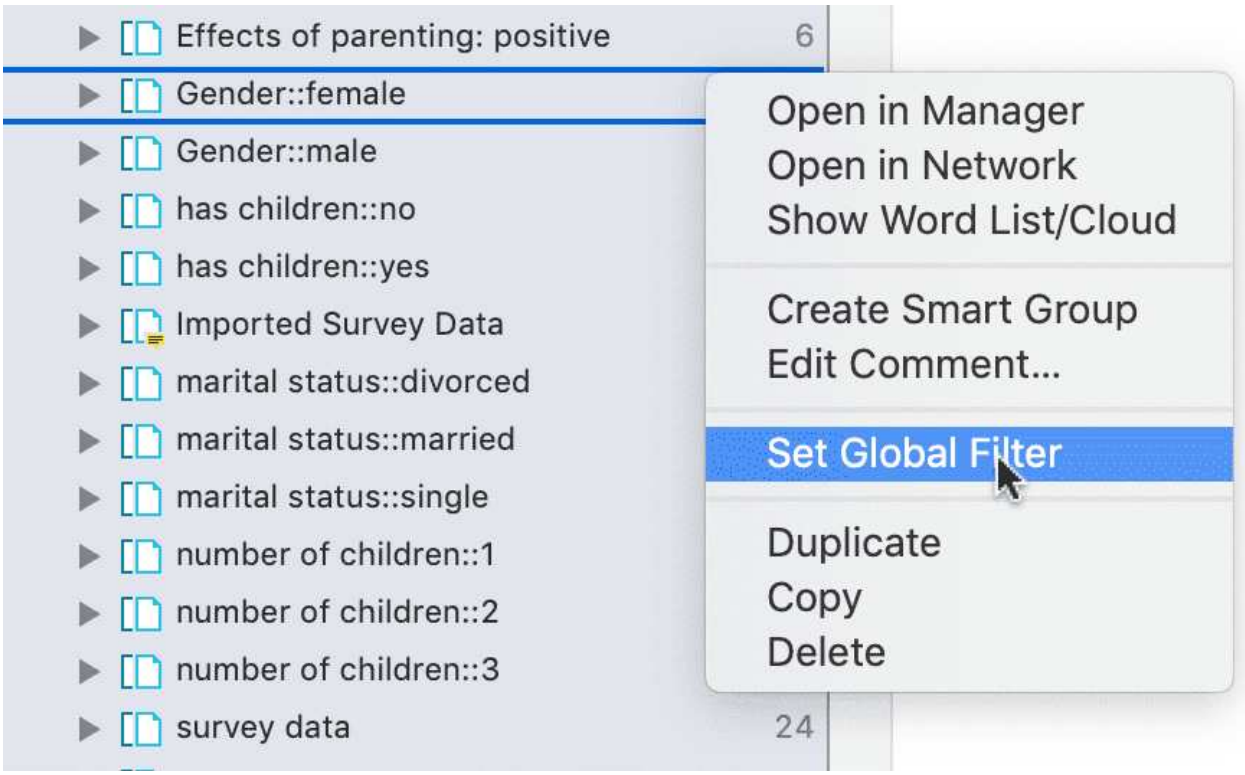
Global filters are a powerful tool to analyze your data. As compared to local filters that you can invoke in each manager, global filters have an effect on the entire project.

> All groups, documents and codes can be set as global filter.

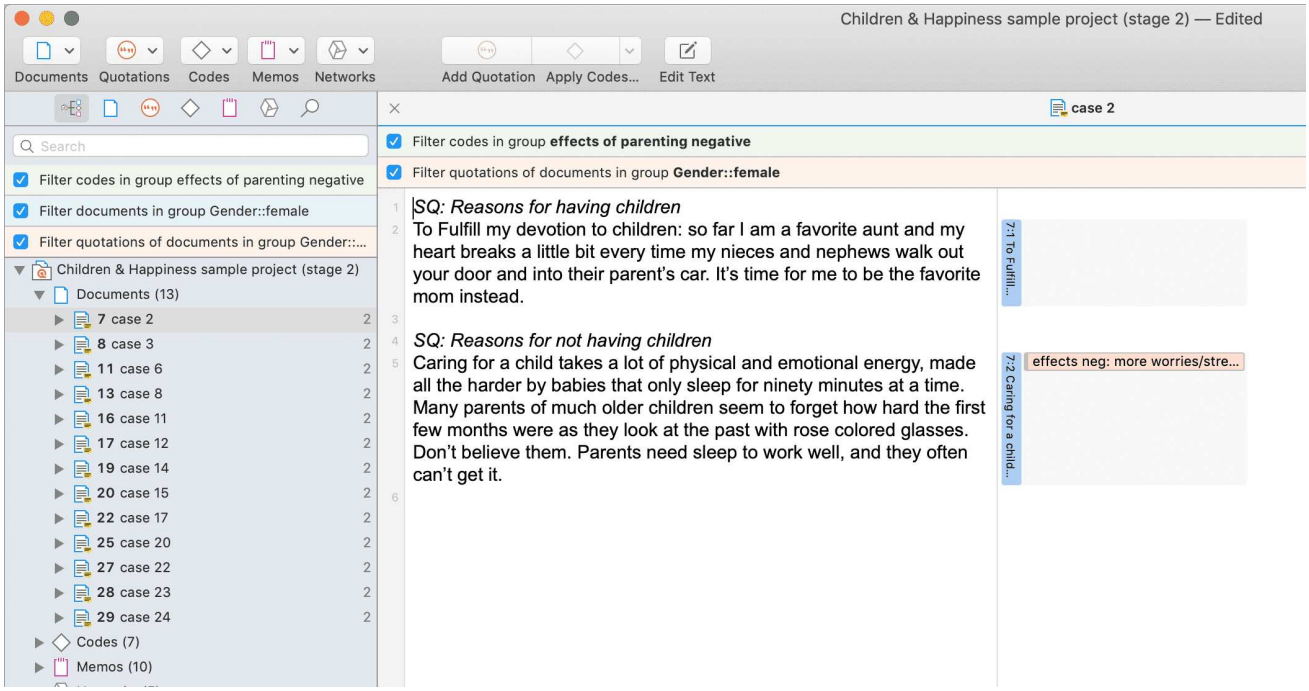
To set a global filter

Right-click on a code, document or group in the Project Navigator or in a Manager and select the option **Set Global Filter** from the context menu.

After setting a global filter, one or multiple rows will appear in all windows affected by the global filter. The rows have the color of the entity that are filtered.



In the screenshot below, you see that codes (green), documents (blue) and quotations (orange) are filtered in the Project Navigator, and codes and quotations are filtered in the main work space.



Activating / Deactivating Global Filters

> While a global filter is active, you can temporarily deactivate it by clicking on the check-box in the global filter bar you see above each filtered list or table.

Changing a Global Filter

> To change a global filter, just select another entity as global filter.

Removing a Global Filter

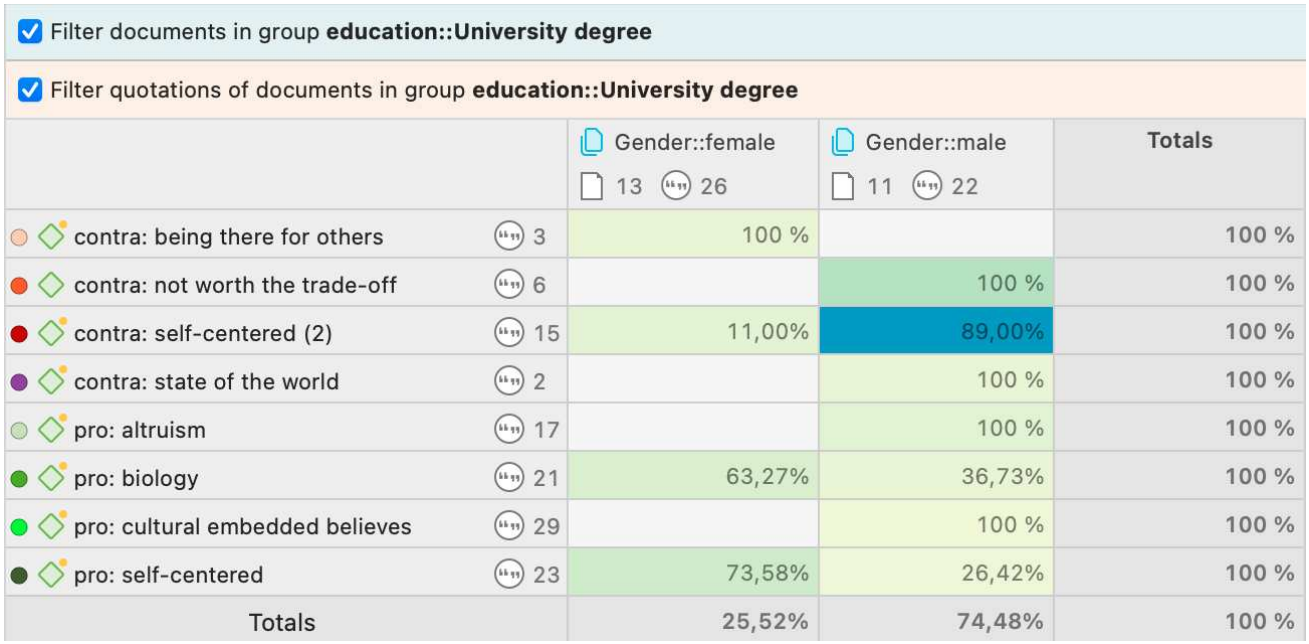
> To remove a global filter, click on the **minus (-)** on the right-hand side of the global filter bar.

Documents as Global Filter

Document groups as global filter affect the list of documents and quotations. Thus, the list of quotations shown in the quotation manager or as results of queries is reduced to those documents that are in the filter.

- When retrieving quotations by double-clicking on a code in the code manager, the **quotation reader** will only show quotations from the documents that are in the filter.
- In the Code-Document Table, it allows you to add a layer to the analysis. If for instance you compare the frequency of codes by respondents with different educational levels, you can

set a document group gender::male as global filter to refine the analysis to only male respondents.



Filter documents in group **education::University degree**

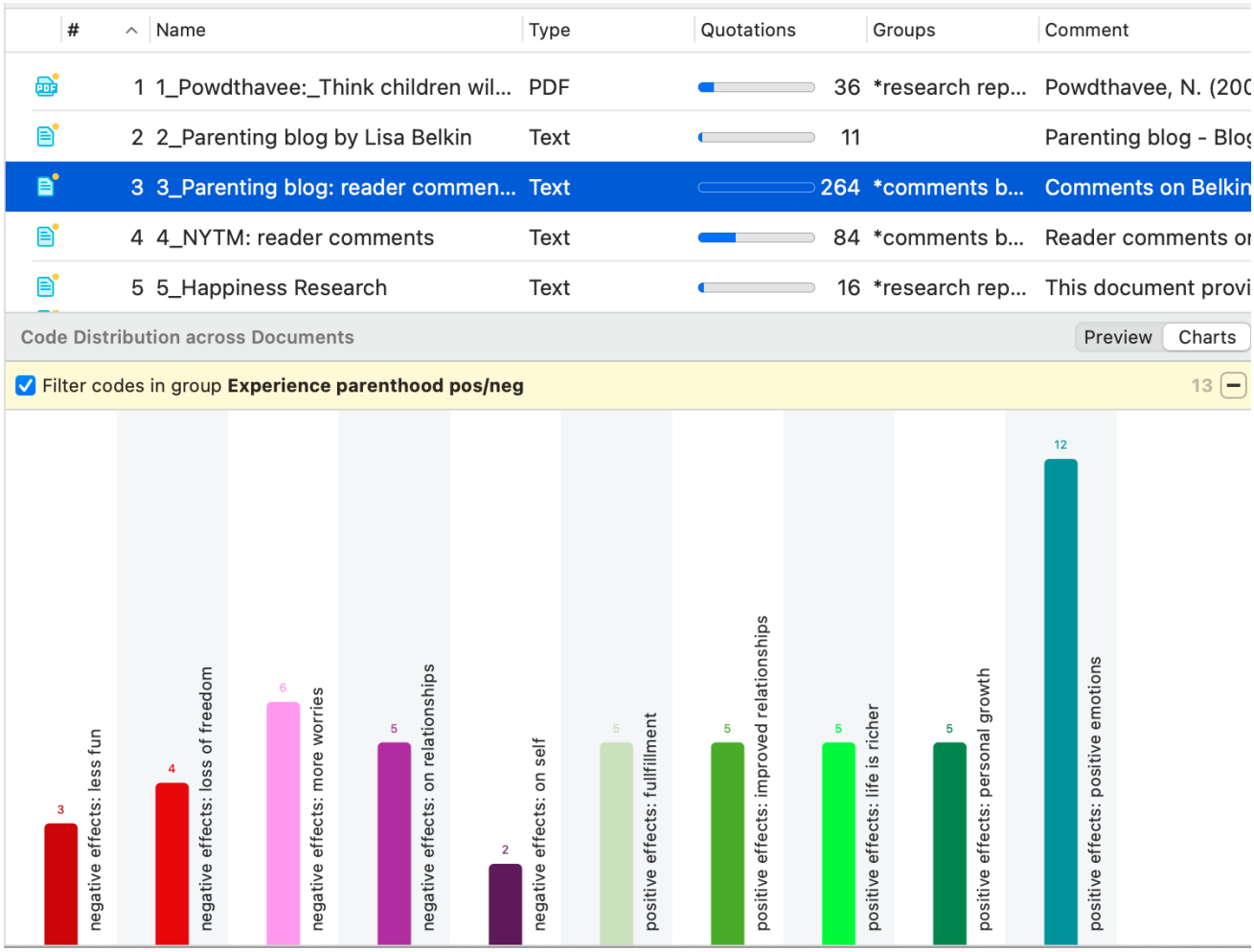
Filter quotations of documents in group **education::University degree**

	Gender::female 13 26	Gender::male 11 22	Totals
contra: being there for others 3	100 %		100 %
contra: not worth the trade-off 6		100 %	100 %
contra: self-centered (2) 15	11,00%	89,00%	100 %
contra: state of the world 2		100 %	100 %
pro: altruism 17		100 %	100 %
pro: biology 21	63,27%	36,73%	100 %
pro: cultural embedded believes 29		100 %	100 %
pro: self-centered 23	73,58%	26,42%	100 %
Totals	25,52%	74,48%	100 %

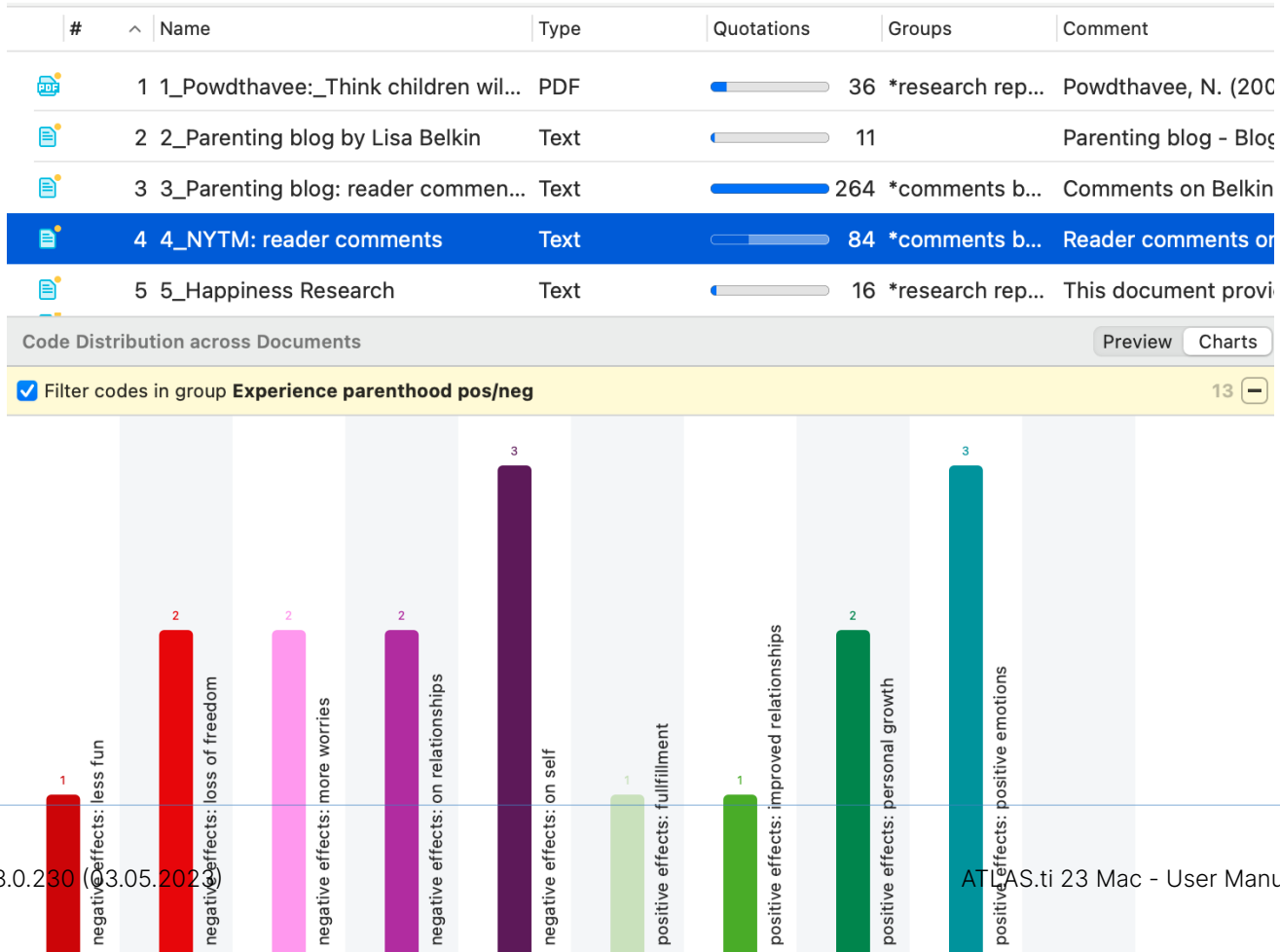
- If you run a Code Co-occurrence Analysis it will apply to all data in your project. If you want to restrict the analysis, to only a particular group of respondents or type of data, you can set a document group as global filter.
- In a network, all documents that are not in the document group set as global filter are faded out.

Filtering the code distribution across documents in the Document Manager

The *code distribution across documents* diagram in the Document Manager shows you the frequency of each code used in a document. These can be many codes; it isn't easy to compare documents without zooming in on particular codes. This can be done by setting a code group as a global filter.

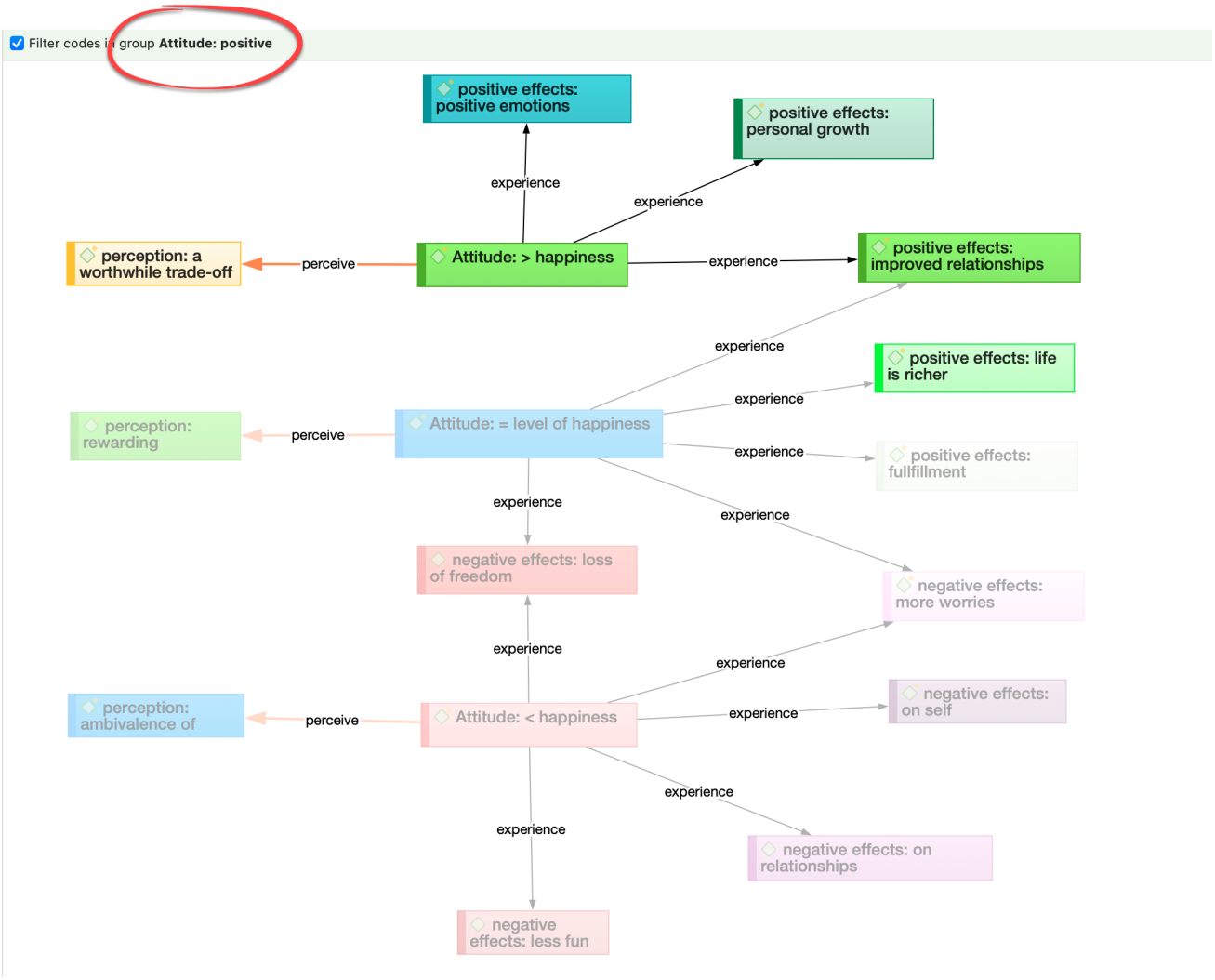


Codes of the code group: Experience of parenthood for document 3



Global filters in networks

- Code groups as global filters are very useful in **networks** when you use the options: **Add Neighbors** and **Add Co-occurring Codes**. Then only the codes of the code group set as global filter are added.
- In a **network**, all codes that are not in the code group set as global filter are faded out.



Memo Groups as Global Filter

- Memo groups as filters affect the list of memos you see in the **memo manager** and all **selection lists**.
- Only memos that are in the memo group set as global filter are shown in the **margin area**.
- In a **network**, all memos that are not in the memo group set as global filter are faded out.

Network Groups as Global Filter

- Network groups as filters affect the list of networks you see in the **network manager** and all **selection lists**.

- In the **margin area**, only networks that are in the network group set as global filter are shown.
- In a **network**, all networks that are not in the network group set as global filter are faded out.

Creating a Global Filter

Creating a global filter means creating a group.

- Document groups as global filter, filter documents and their quotations.
- Code groups as global filter, filter codes.
- Memo groups as global filter, filter memos.
- Network groups as global filter, filter networks.

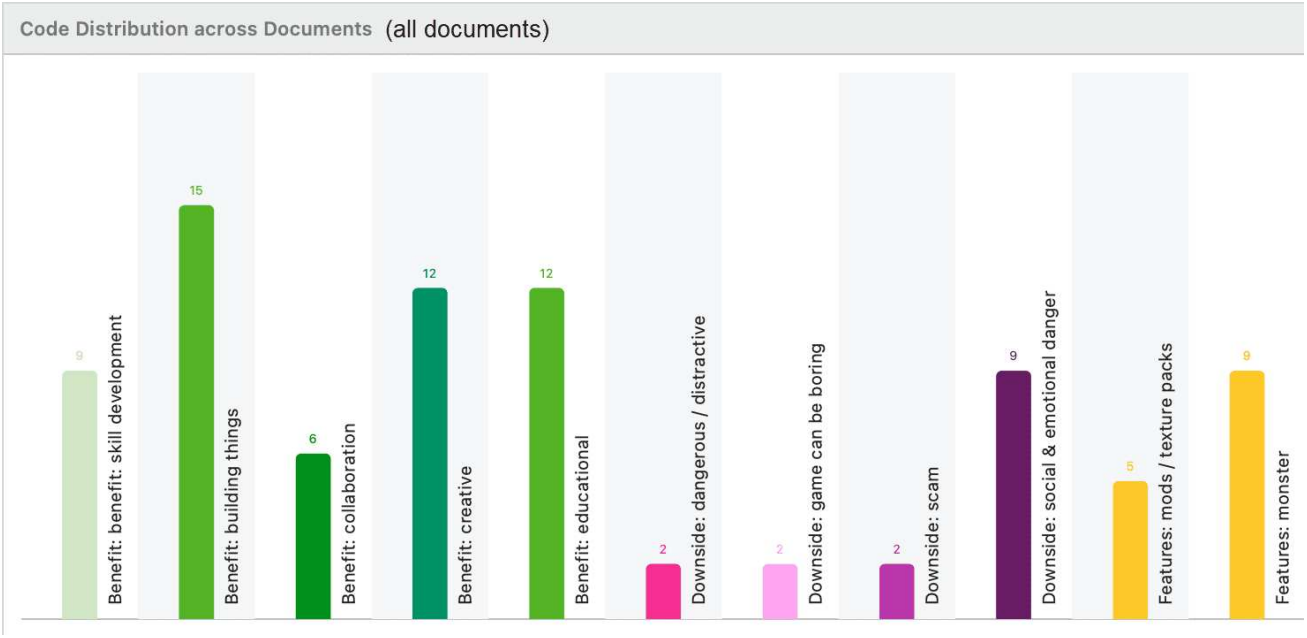
Analysing Code Distributions

Code distributions are displayed in the Document Manager and in the Code Manager in the form of bar charts. In the document manager you will see a bar for each code. The higher the bar, the more often the code was used. In the Code Manager each bar stands for a document. Within the bar you can see how the codes are distributed in the document.

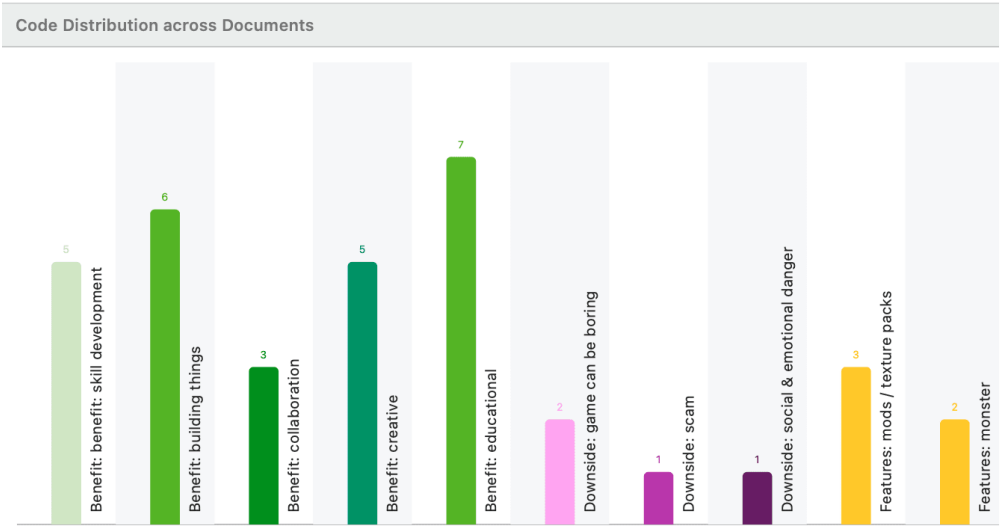
After you've encoded the data, a look at the code distribution gives you a feel for the data. Which topics were mentioned more or less frequently, by whom, is there a difference between different groups of respondents? How are the topics distributed?

Code Distribution across Documents

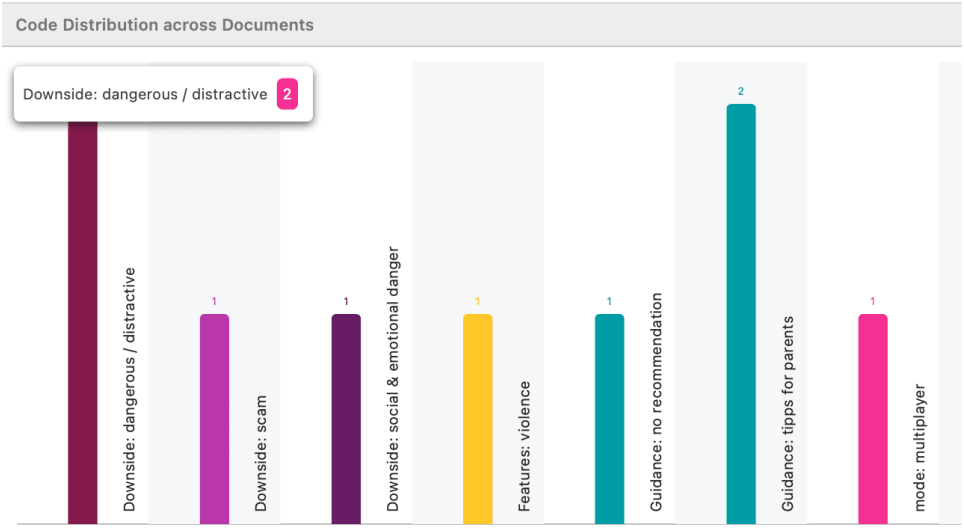
In the first image below, you see the distribution of three categories: benefits, downsides and features of the computer game Minecraft across all documents. In the second image, the data have been filtered a) by respondents who evaluated the game positively, and b) by respondents who evaluated the game negatively. You can see very quickly that there is a difference. Respondents who evaluated the game negatively did not mention any benefits (green bars).



Respondents who evaluate the game positively



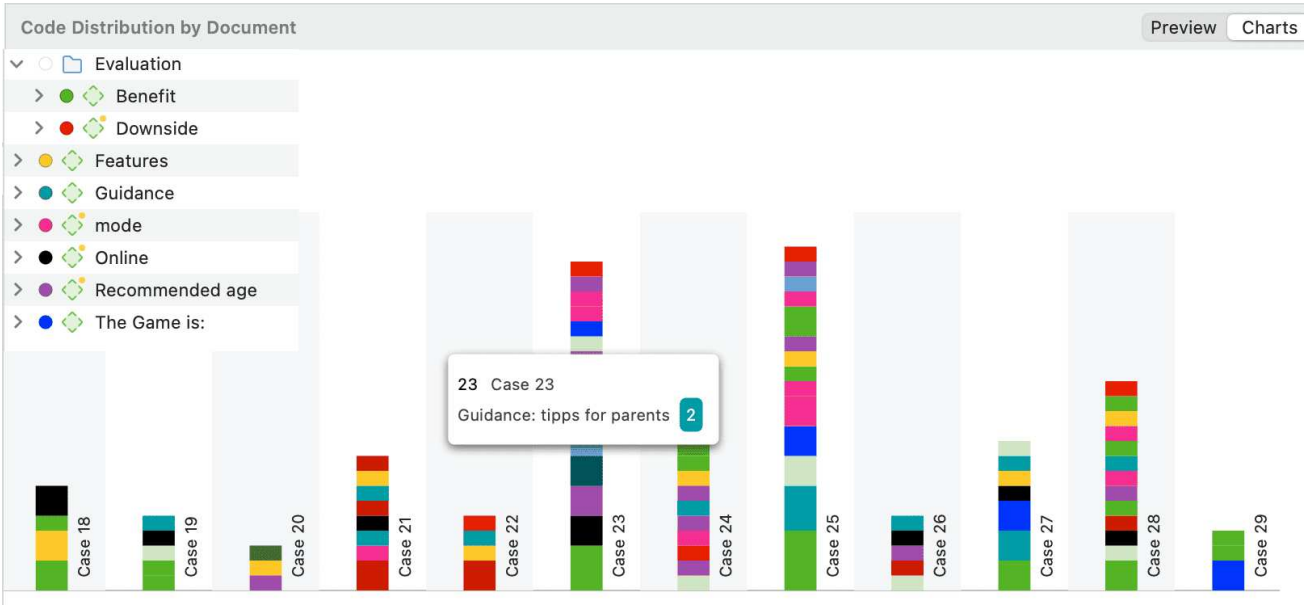
Respondents who evaluate the game negatively



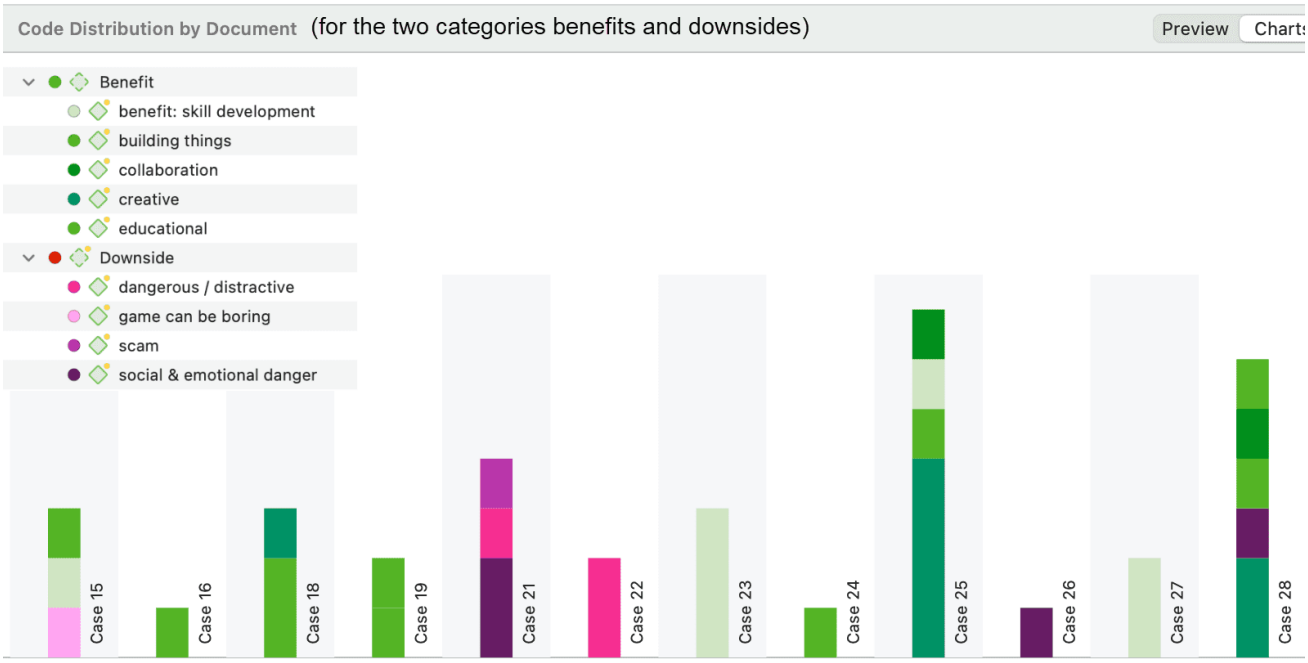
Comparison by respondent groups

Code Distribution by Documents

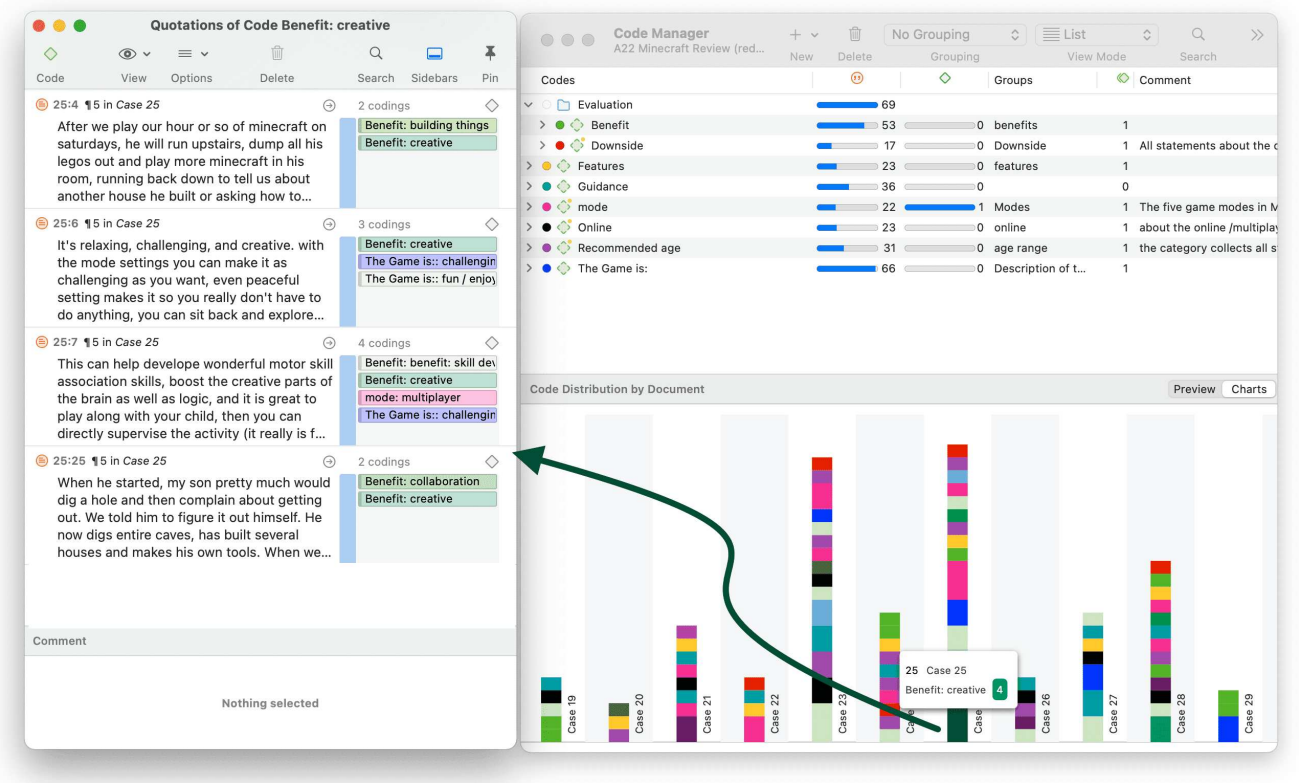
In the image below you see the distribution of the various high level topic within each document. We see for instance that case 23 and case 25 talk about a wider variety of topics than the other respondents. In order to generate this graphic, each category has a different color and all subcodes within a category are also colored with the same color.



In the image below, the focus is on two categories, benefits and downsides. In order to be able to differentiate between the various subcodes of a category, each subcode has a different color. If you analyse interview data for instance, this is a great way to go through your data, category for category and compare the respondents' answers. You see who talked about benefits or downsides, strategies or consequences and about which aspects of those major themes they talked about.



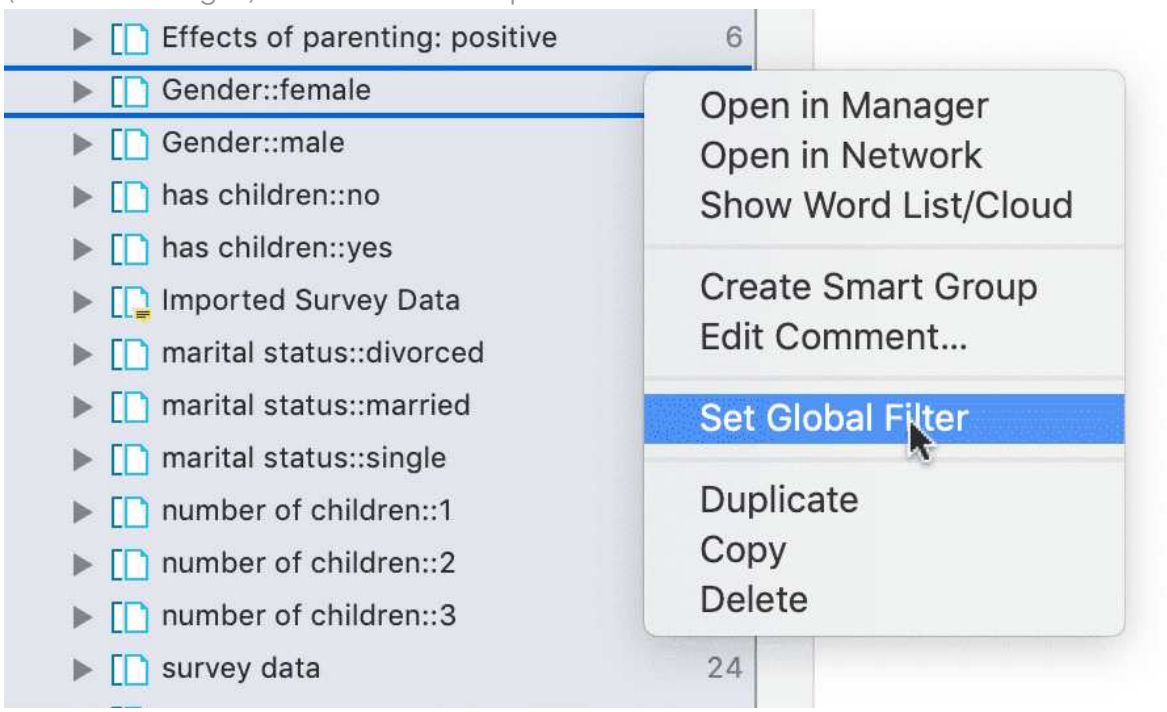
With a click on a bar, you can retrieve the coded data per code for each respondent.


Quotations of Code Benefit: creative
Code
View
Options
Delete
Search
Sidebars
Pin
25:4 ¶5 in Case 25
2 codings
After we play our hour or so of minecraft on saturdays, he will run upstairs, dump all his legos out and play more minecraft in his room, running back down to tell us about another house he built or asking how to...
Benefit: building things
Benefit: creative
25:6 ¶5 in Case 25
3 codings
It's relaxing, challenging, and creative. with the mode settings you can make it as challenging as you want, even peaceful setting makes it so you really don't have to do anything, you can sit back and explore...
Benefit: creative
The Game is:: challengin
The Game is:: fun / enjoy
25:7 ¶5 in Case 25
4 codings
This can help develope wonderful motor skill association skills, boost the creative parts of the brain as well as logic, and it is great to play along with your child, then you can directly supervise the activity (it really is f...
Benefit: benefit: skill dev
Benefit: creative
mode: multiplayer
The Game is:: challengin
25:25 ¶5 in Case 25
2 codings
When he started, my son pretty much would dig a hole and then complain about getting out. We told him to figure it out himself. He now digs entire caves, has built several houses and makes his own tools. When we...
Benefit: collaboration
Benefit: creative
Comment
Nothing selected
Code Manager
A22 Minecraft Review (red...
New
Delete
No Grouping
Grouping
List
View Mode
Search
Codes
Groups
Comment
Evaluation 69
Benefit 53 0 benefits 1
Downside 17 0 Downside 1 All statements about the
Features 23 0 features 1
Guidance 36 0 0
mode 22 1 Modes 1 The five game modes in M
Online 23 0 online 1 about the online /multiplay
Recommended age 31 0 age range 1 the category collects all s
The Game is: 66 0 Description of t... 1
Code Distribution by Document
Preview
Charts
25 Case 25
Benefit: creative 4
Case 19
Case 20
Case 21
Case 22
Case 23
Case 26
Case 27
Case 28
Case 29

Setting a Global Filter

Global filters can be set in the Project Explorer on the left, and in each Manager.

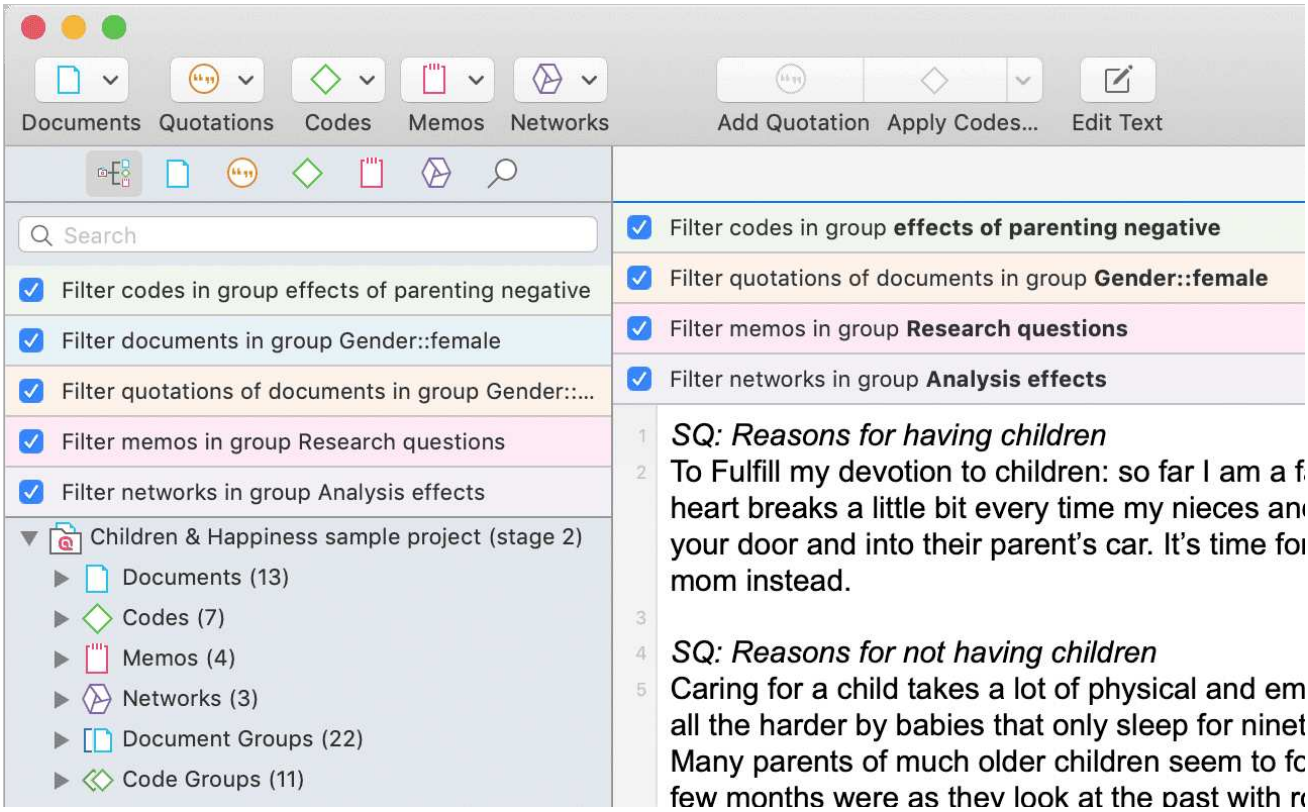
Right-click on a group in the Document Group section of the Project Explorer (or in a Manager) and select the option Set Global Filter.



Display Of Globa

If a global filter is set, all affected managers, browsers, lists and tools show a colored bar on top indicating which filter has been set.

- global document filters are blue.
- global quotations filters are orange.
- global code filters are green.
- global memo filters are magenta.
- global network filters are purple



Activating / Deactivating Global Filters

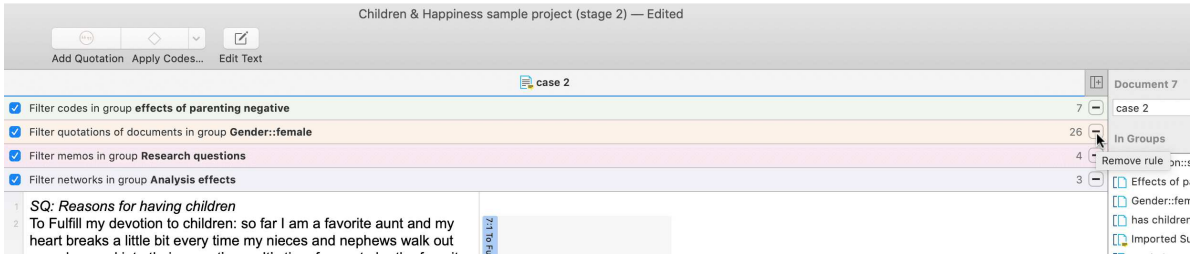
> While a global filter is active, you can temporarily deactivate it by clicking on the check-box in the global filter bar that you see above each filtered list or table.

Changing a Global Filter

> To change a global filter, right-click on a different group of the same type and set it as global filter. This will automatically deactivate the currently active filter.

Removing a Global Filter

To remove a global filter, click on the **minus (-)** on the right-hand side of the global filter bar.



Removing / Changing / Activating / Deactivating a Global Filter

If you change a global filter, the currently active filter is automatically reset (see below).

Removing a Global Filter

> Click on the **minus (-)** on the right-hand side of the global filter bar.

Changing a Glob

> To change a global filter, right-click on a different group of the same type and **set it as global filter.** This will automatically deactivate the currently active filter.

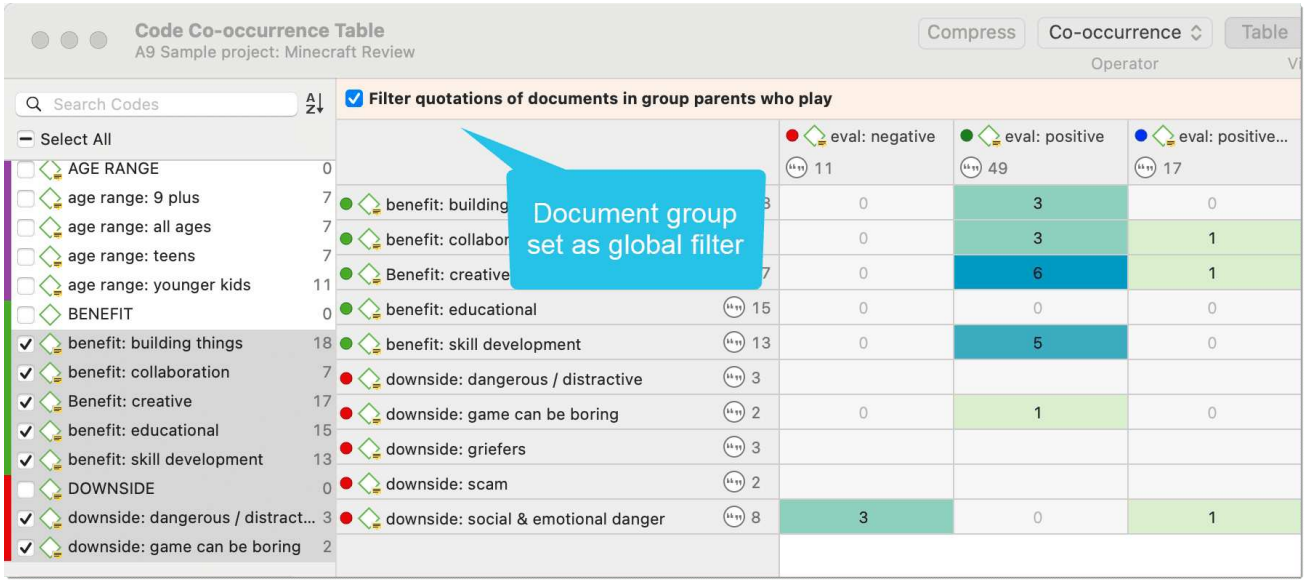
Activating or Deactivating Global Filters

> While a global filter is active, you can temporarily deactivate it by clicking on the check-box in the global filter bar you see above each filtered list or table.

Global Filters in the Code Co-occurrence Table

The screenshot below shows an active global filter in the Code Co-occurrence Table. You will see a bar on top of the table that shows what kind of filter is set. The results of the table will only show the data that passes the filter.

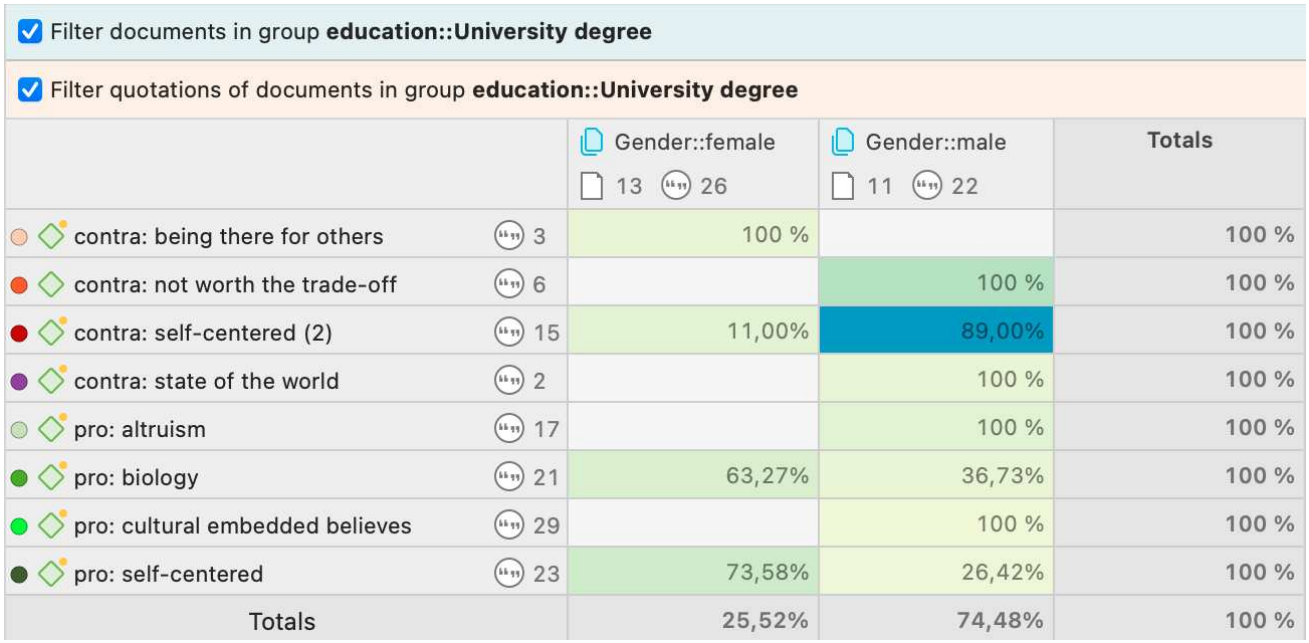
If you deactivate the filter by unchecking the box, you will see the results as they apply to the entire project.



Global Filters in the Code Document Table

The screenshot below shows an active global filter in the Code-Document Table. You will see a bar on top of the table that shows what kind of filter is set. The results of the table will only show the data that passes the filter.

If you deactivate the filter by unchecking the box, you will see the results as they apply to the entire project.



	Gender::female 13 26	Gender::male 11 22	Totals
contra: being there for others 3	100 %		100 %
contra: not worth the trade-off 6		100 %	100 %
contra: self-centered (2) 15	11,00%	89,00%	100 %
contra: state of the world 2		100 %	100 %
pro: altruism 17		100 %	100 %
pro: biology 21	63,27%	36,73%	100 %
pro: cultural embedded believes 29		100 %	100 %
pro: self-centered 23	73,58%	26,42%	100 %
Totals	25,52%	74,48%	100 %

Querying Data in the Quotation Manager

Your standard tool for querying data might be the Query Tool. You can, however, also build queries in the Quotation Manager. In addition to code queries you can for instance also combine a text search with your query.

> The Quotation Manager was the original tool for querying data in ATLAS.ti Mac. The problem was that users always looked for a dedicated query tool like the one ATLAS.ti Windows has. Thereby, they overlooked that building queries with the Quotation Manager in ATLAS.ti Mac was actually more powerful than using the ATLAS.ti Windows query tool. ATLAS.ti Mac now also has a Query Tool, and it offers the same functionality as the query tool in ATLAS.ti Windows.

A **query** is a search expression built from operands (codes and code groups) and operators (Boolean, proximity or semantic operators), or other filters, that define the conditions that a quotation must meet to be retrieved, for example "All quotations coded with both codes A and B that contain the word XY".

This is the list of filters and operators you can choose from:

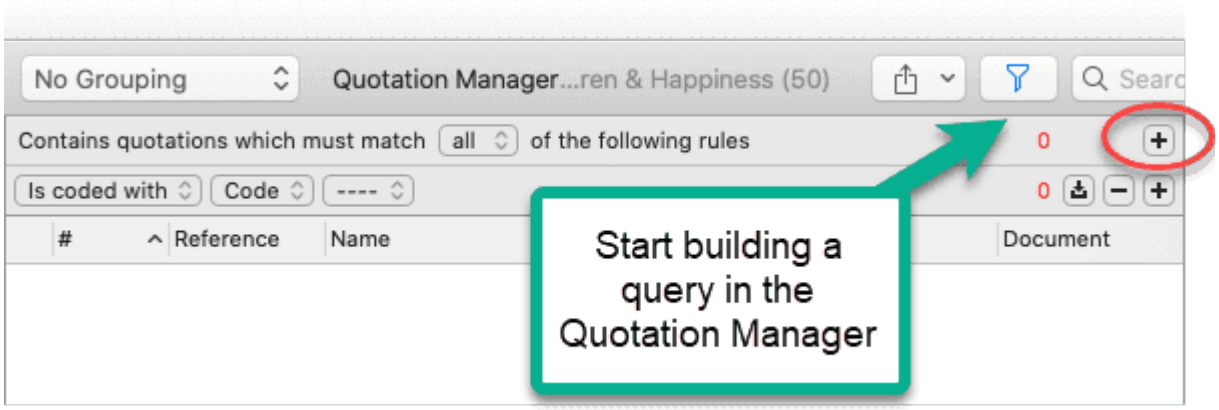
- Quotation: Select this option, if you want to filter by specific quotations
- Number: Select this option, if you want to filter by quotation number. E.g. If you enter '3', you find for instance quotations 1:3; 2:3; 3:3; 4:3, and so on. If you enter '33', you find quotations 1:33; 3:33; 10:33 and so on.
- Name: This requires that you have named the quotations. If so, you can search for quotation names that contain a certain word or letter sequence.
- Comment: This option allows you to search for quotations that contain a certain word or letter sequence in the comment.
- Has Comment: This option allows you to search for quotations that have, or do not have a comment.
- Text Content: Select this option if you want to search for quotations that contain a specific word or letter sequence.

- **Type**: Use this option to filter quotations by document type (PDF, image, video, audio, text, or geo)
- **Creation Date**: Search for quotations that have been created on a specific date.
- **Creation by**: Search for quotations that have been created by a specific user.
- **Modification date**: Search for quotations that have been modified by a specific date.
- **Modified by**: Search for quotations that have been modified by a specific user.
- **is coded with code or code group**: Search for quotations that are coded with a specific code, or codes of a code group.
- **Linked with Quotation**: Search for quotations that are linked with a specific quotation that you select from the list of quotations.
- **Linked with Memos**: Search for quotations that are linked with a specific memo that you select from the list of memos.
- **is in document or document group**: Search for quotations in a specific document or document group. This option is useful to combine it with another search request to restrict the results to a specific document or document group, or also combinations of documents, or document groups. See example below.

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.

This is how you build a query in the Quotation Manager:

> Open the Quotation Manager and click on the **filter** icon. Next, click on the plus button to enter the first line of the query.

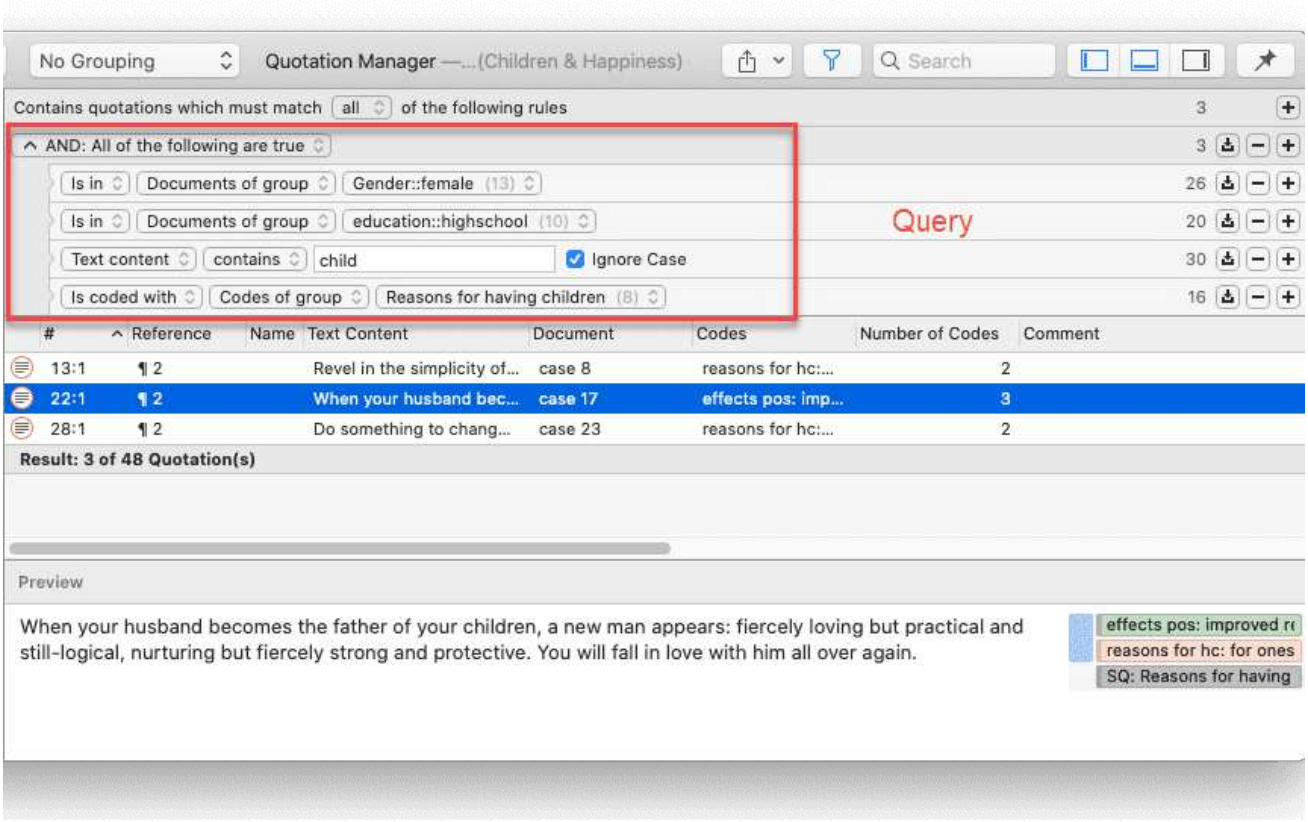


You find step-by-step instructions on how to build a query in the following chapters:

- example Boolean queries
- example proximity queries

- an example of a complex query based on a combination of operators

In the following image, you can see an example of a query build in the Quotation Manager:

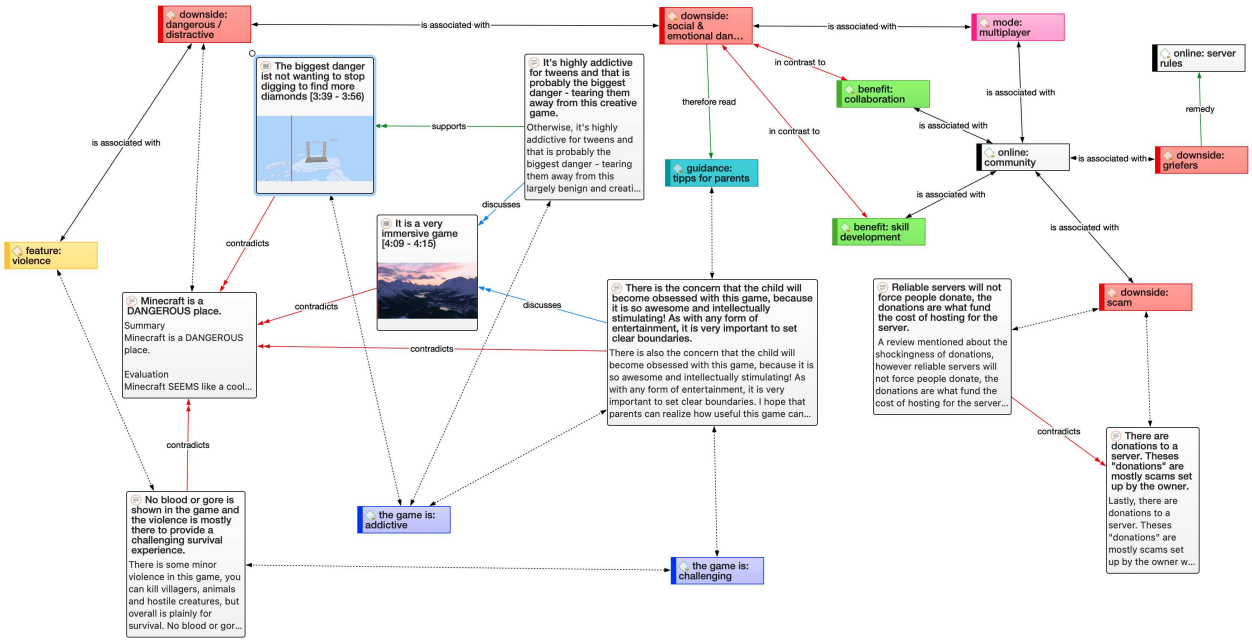


ATLAS.ti Networks

Video utorial: Visualizations in Building the Understanding

Visualization can be a key element in discovering connections between concepts, interpreting your findings, and effectively communicating your results. Networks in ATLAS.ti allow you to accomplish all three of these important objectives. These small segments of your larger web of analysis are modeled using the network editor, an intuitive work space we also like to think is easy on the eye.

The word **network** is a ubiquitous and powerful metaphor found in many 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**.



In contrast with linear, sequential representations (e.g., text), presentations of knowledge in networks resemble more closely the way human memory and thought is structured. Cognitive "load" in handling complex relationships is reduced with the aid of spatial representation techniques. ATLAS.ti uses networks to help represent and explore conceptual structures. Networks add a heuristic "right brain" approach to qualitative analysis.

The user can manipulate and display almost all entities of a project as nodes in a network: quotations, codes, code group, memos, memo groups, other networks, documents, document groups and all smart entities.

Nodes And Links

The term **network** is formally defined within graph theory, a branch of discrete mathematics, as a set of nodes (or "vertices") and links. A node in a network may be linked to an arbitrary number of other nodes.

The number of links for any one node is called its degree; e.g., a node with a degree of zero is not linked at all. Another simple formal property of a network is its order: the number of its nodes. You may make practical use of the degree of nodes by using it as a sorting criterion in the codes list window. The column 'Density' in the Code Manager represents the degree of a code.

Directed and Non-Directed Links

Links are usually drawn as lines between the connected nodes in graphical presentations of networks.

Furthermore, a link between two nodes may be directed or not. A directed connection is drawn with an arrow. With directed links, source and target nodes must be distinguished. The *source node* is where the link starts, and the *target node* is where it ends: the destination to which the arrow points.

Links are created either implicitly (e.g., when coding a quotation, the quotation is "linked" to a code), or explicitly by the user. See Linking Nodes.

Strictly speaking, code-quotation associations ("codings") also form a network. However, you cannot name these links, the code is simply associated with a quotation through the act of coding. In a network you can visualize these links. In ATLAS.ti all unnamed links are referred to as second class links, all named links are referred to as first-class links.

First-Class Links

First-class links are links based on relations. They are entities by themselves, with names, authors, comments, and other properties. They are available for:

- Links between two codes. These include:
    - links between two category codes
    - links between two subcodes (within or across categories)
    - links between a subcode and its own or other category codes
- Links between two quotations. The latter are called hyperlinks. See Working With Hyperlinks.

Second-Class Links

Second-class links are links that do not have individual properties; These are:

- links between quotations and codes
- all links to memos
- all links between a group and its members
- all hierarchical links:
    - links between categories and their subcodes
    - links between folders
    - links between folders and categories
    - links between folders and independent codes
    - links between folders and subcodes
    - links between folders

If you change hierarchical links in the network, this has an effect on the hierarchy of codes and folders in the entire your project!

Why Groups Cannot be Linked

Groups cannot be linked as by definition, they are not mutually exclusive. You can add a document to as many document groups as you want. This also applies to code groups. A code can be a member of multiple code groups.

Groups are filters. Code groups are at times regarded by users as a higher order category, which they are not. See Building a Code System for further detail.

In order to compare and analyze documents by certain criteria like sociodemographic characteristics, you add them to document groups like gender::male / female, family status::single / married / separated / divorced, etc. This allows you also to combine certain criteria, e.g., to run an analysis for all female respondents that are married. See Working with document groups and Working with Smart Groups.

Likewise, the purpose of code groups is to be used as filters. A useful filter could be all codes of a category, but also all codes that are relevant for a certain research questions, or all codes that could be classified as coding a strategy, or a consequence or a context across different categories.

So you might have a code group containing codes A, B, C and D, and another code group containing codes B, D, E and F. If you now were to relate these two code groups to each other, you end up with circular or illogical relations.

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").

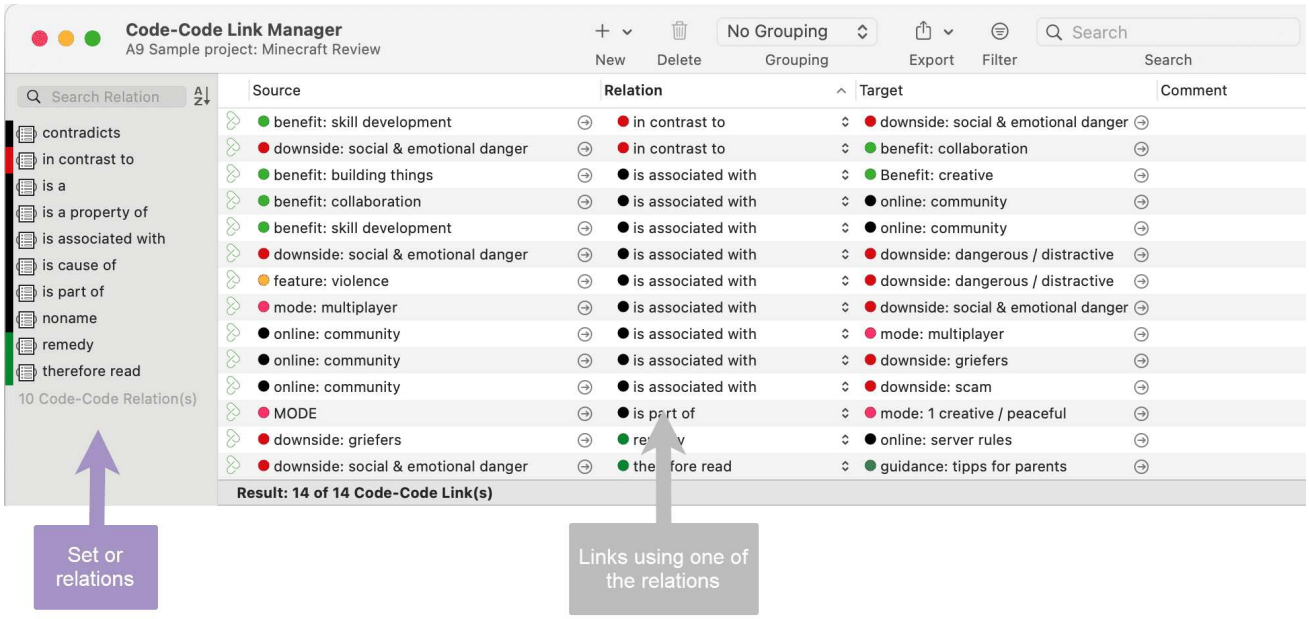
The name of a link is displayed in the network editor as a label attached to the link midway between the two connected nodes.

Six pre-set relations are available in ATLAS.ti. These standard relations can be substituted, modified, or supplemented by user-defined relations.

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 that can *use* it.

If you take a look at the Code-Code Link Manager below, you can easily see how it works:



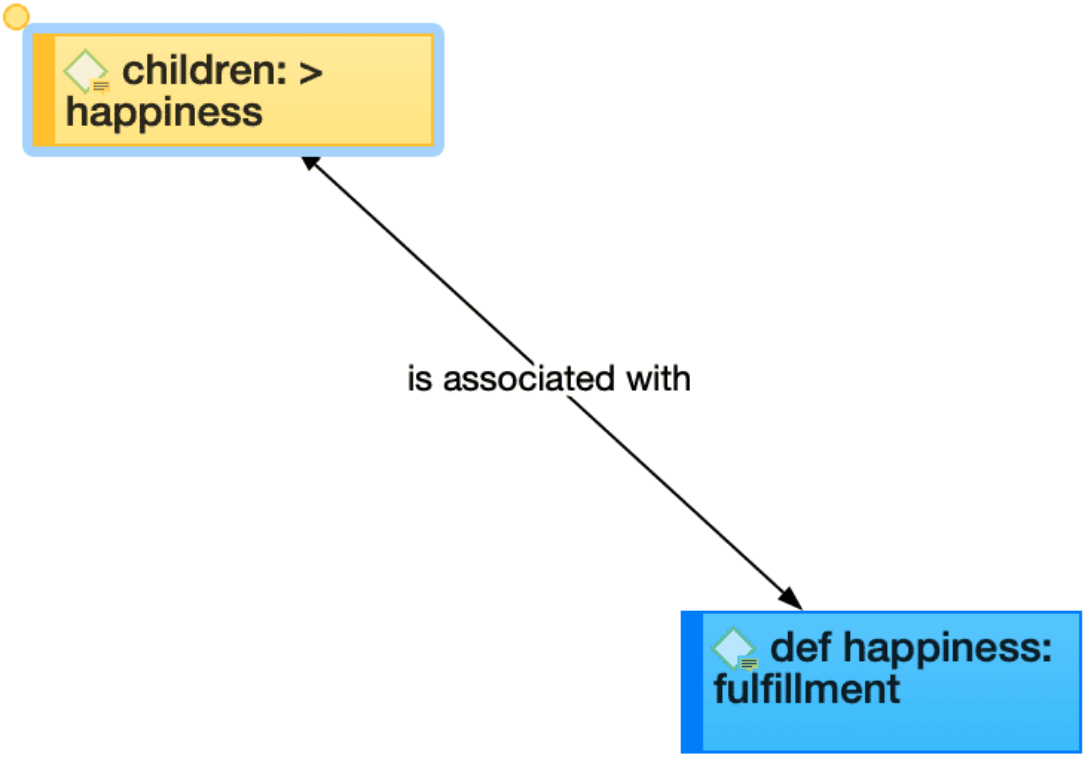
Another way to think of links and relations is to view links as *instances* of relations. Links are informed about the characteristics of relations, which define their styles. If a characteristic of a relation is changed (e.g., line width, color, symbol), these changes are propagated to all links using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

ATLAS.ti Default Relations

The default relations that come with the software are listed in the table below. C1 and C2 are source and target nodes, respectively.

Relation Name	short name	symbolic name	width	color	property
is associated with	R	==	1	Black	Symmetric
is part of	G	[]	1	Black	Asymmetric
is cause of	N	⇒	1	Black	Asymmetric
contradicts	A	<>	1	Black	Symmetric
is a	Isa	0	2	Black	Asymmetric
noname			1	Black	Symmetric
is property of	P	*}	1	Black	

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 (name, short and symbolic).



The relation **property** affects the display a relation. All asymmetric relations are symbolized in the network editor with an arrow pointing toward the target code. Symmetric relations are displayed as a line with two arrows pointing to both ends of the link.

The following properties are user-definable: the labels, the width and color of the line linking two nodes, the property, and the preferred layout direction.

The **preferred layout direction** affects the layout of a network when opening an ad hoc network.

Formal Properties - Some Definitions

Symmetric Relationship

A relation R is symmetric if it holds for all A and B that are related via R. A is related to B if, and only if, B is related to A.

Examples:

- A **is married to** B (in most legal systems)
- A **is a fully biological sibling of** B
- A **is a homophone of** B

QDA Examples:

- walking the talk **is associated with** role model
- having a clear vision **is related to** performance orientation
- communicating well **is associated with** empowerment

Asymmetric Relations

A graph is asymmetric if:

- for every edge, there is not an edge in the other direction, then the relation is asymmetric
- loops are not allowed in an asymmetric digraph

If x has a relation R to y, but y does not have a relation R to x.

Examples:

- Martin **is a child of** Marilyn: If Martin is the child of Marilyn, then Marilyn cannot be the child of Martin.

QDA Examples:

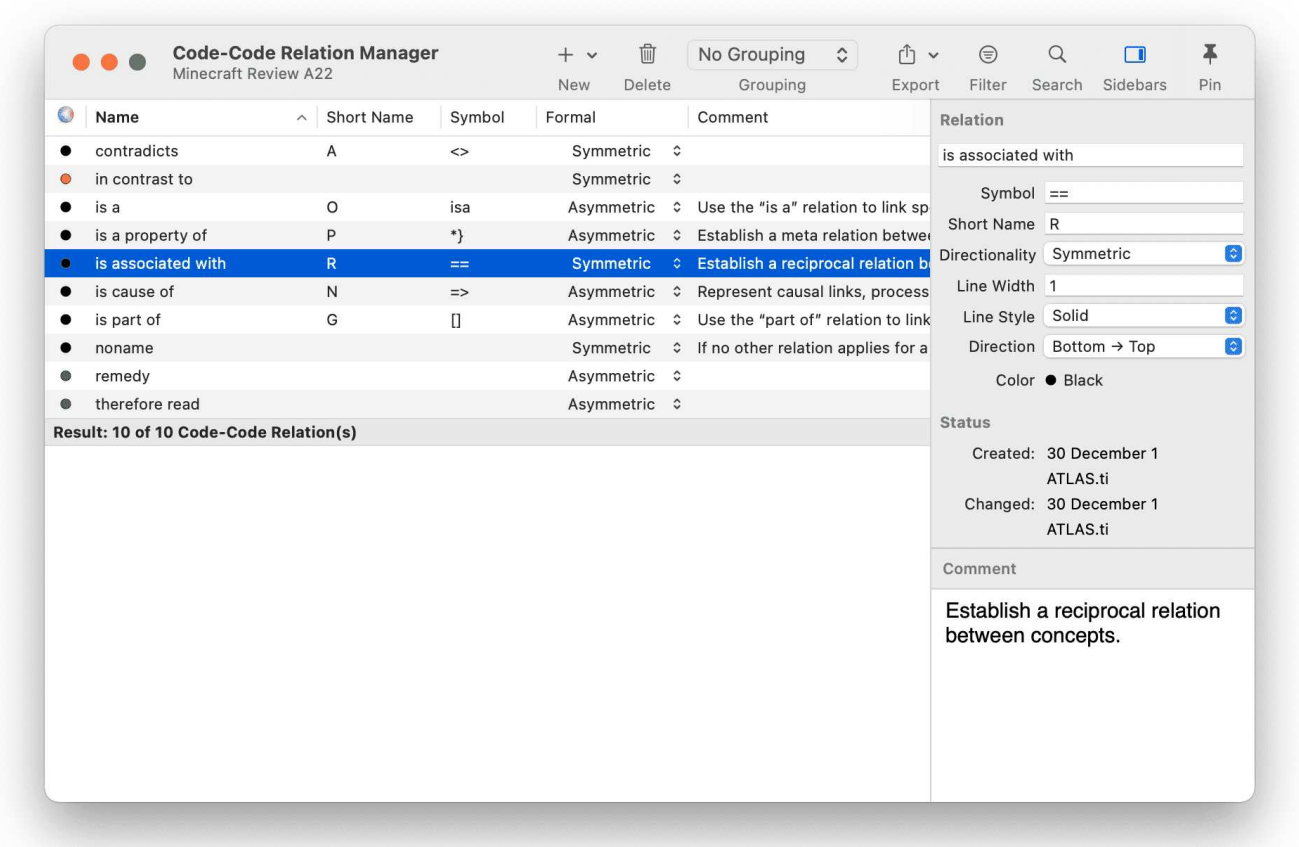
If we use the same example as above, but instead define the relation **results in** being an asymmetric one, then you do not infer that nice weather is necessarily related to you being a happy person, or that you being a happy person has any effect on the weather. The later would be the case if you used a symmetric relation.

The relations in the following example are defined as asymmetric relations: Supportive environment **motivates** learning & development **results in** higher job satisfaction. This does not imply that a supportive environment results in higher job satisfaction.

Relation Manager

The Relation Manager is used to review the properties of existing relations, to edit existing relations, or to create new relations. You can switch between relations for code-code links and relations for hyperlinks. As the column information and the ribbon options are the same for both, below you find only one description. For further information see Working With Networks.

> You can access the Relation Manager for Codes via the Code menu, and the Relation Manager for Hyperlinks via the Quotation Menu.



Short Name: Short name as an alternative to the full name. You can either display full names, short names or the symbolic name for all relations in a network.

Symbol: Symbolic name as an alternative to the full name. You can either display full names, short names or the symbolic name for all relations in a network.

Formal: The formal property of a relation: symmetric, asymmetric, or transitive. See About Relations.

Comment: Short description of the relation type.

For further information see Creating New Relations

The Network Editor

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 entities using your cursor and move them around the screen as well as draw and cut links between them.

Networks have certain important characteristics:

- Networks can be given names under which they are stored and accessed inside the project.
- Networks can be commented.
- Networks are displayed and edited in the network editor.
- Networks allow individual layouts of the nodes.
- As a node, a single entity can be a member of any number of networks.
- An entity, e.g. a specific code, can only appear once in any network.

Networks allow for a flexible but logically consistent display of links and relations, so there are a few constraints to keep in mind:

- If code A is linked to code B using the relation *is associated with*, then every network that contains code A and code B will necessarily include the relation *is associated with* between the two.
- Furthermore, as only one link can exist between any two nodes at any given time, no network will display any other relation between those two nodes.

If you want to link code A and code B in different ways in different networks, you need to work with "dummy" codes that modify a relation. For example:

A specific context X results in emotion A leading to behaviour B, then linking A to B directly would be false:

Emotion A ---- leading to -⟶ Behavior B

However, you can express it like this:

Emotion A ---- if -⟶ context X -----leading to --⟶ Behaviour B

'Context X' is a dummy code as it did not already exist in the code system. It needed to be added in order to express a relationship that emerges while you were working with and interpreting the data.

In order to visualize such relationships, you have the option to create new codes in the network editor. These will show up in your list of codes with 0 groundedness and a density of 1 or more, depending on their connectedness in the network.

Node Types

The following object classes can be displayed and edited as nodes within the network editor.

Codes as Nodes

Codes are probably the most prominent objects in ATLAS.ti networks. They provide the main ingredients for models and theories.

Memos as Nodes

Memos in networks are often an important supplement to code networks.

Several theoretical memos can be imported into a network to map out their relationship. The visual layout provides comfortable territory for moving from memo to memo, in order to read and contemplate each individually and the relationship(s) between them.

Documents as Nodes

Documents as nodes are useful for case comparisons paired with the option to add code neighbors.

Documents as nodes make a nice graphical content table for graphical documents when selecting the preview.

The icons for document nodes vary by media type.

Quotations As Nodes

Quotations and codes have one thing in common, which is different for the other entities. They can link to each other (quotations to quotations and code to codes) with fully qualified "first class" links. See Nodes and Link.

The inclusion of quotations in a network supports the construction and inspection of hyperlink structures. The icons for quotation nodes vary by media type.

Groups as Nodes

Displaying groups, and their members in networks are useful to present all members that are part of the group. The links between a group and its members are depicted by a dotted red line. The line property cannot be changed.

Network as Nodes

Networks as nodes allow the inclusion of networks in other networks. They cannot be linked to anything, but via the context menu you can open the network in a separate network editor.

If you double-click on a network node, its comment is displayed and from there you can click to open it. This is for instance useful if you are running out of space on your screen. Instead of trying

to represent everything in one network, you can create several networks that build on each other. Via a network node in a network, you can continue to tell the story you want to tell.

Network View Options

In ATLAS.ti Mac you have the following view options:

Code-Document Connections: At times it is interesting to see which codes have been applied to a document, or a document group. When coding the data, you apply codes to quotations, which are part of documents, but you do not directly apply codes to a document. Therefore, there are no direct links between documents and codes. In order to see those connections, you need to activate this option.

> Code-Document and Code-Document Group connections are shown as blue lines.

Preview: You can activate a preview for documents, quotations and memos. Audio and video documents or quotations can be played in the preview window. If you only want to see the preview of selected entities, right-click the entity and select the *Preview* option from the context menu.

Comments: You can activate to see comments for documents, quotations, codes, memos or groups in a network.

Network Editor - Layout And Routing Options

> Open the drop-down menu of the **Layout** button in the toolbar. You have the following options:

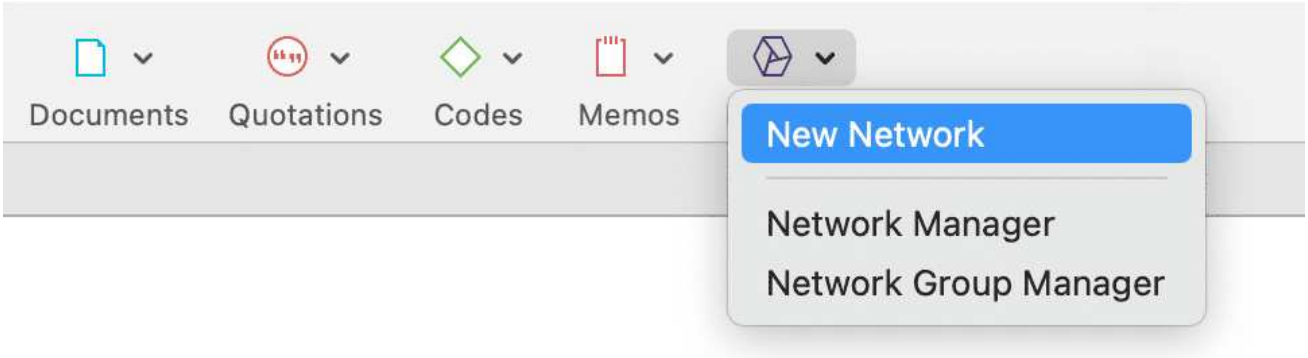
- You can select to display all or only selected nodes in a circular or grid layout.
- When building your network and arranging nodes, the following options help you to align selected nodes:
    - align left
    - align right
    - align top
    - align bottom
    - center horizontally
    - center vertically
    - distribute horizontally
    - distribute vertically

Basic Network Procedures

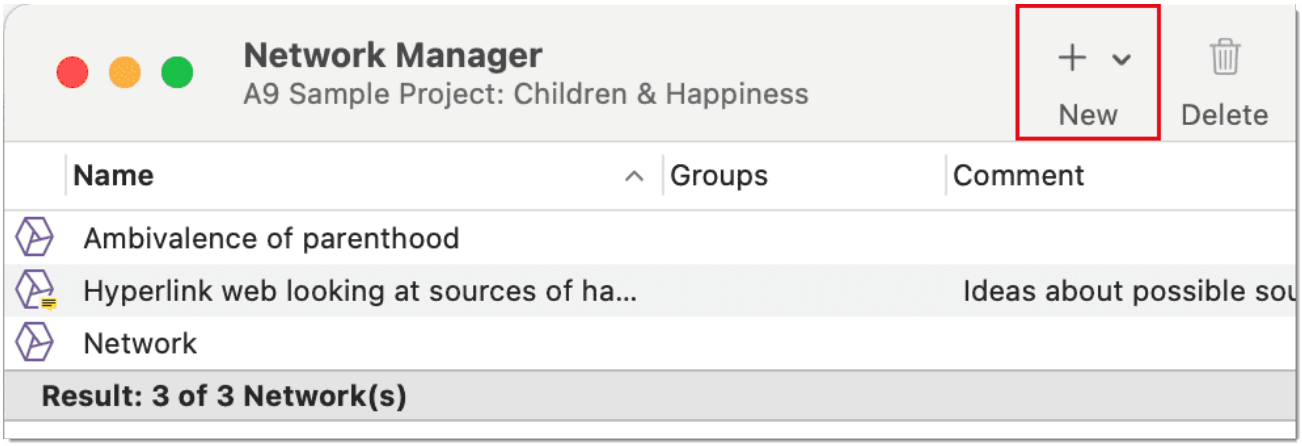
Two methods for creating networks are available. The first one creates an empty network, and you begin to add entities as sequential steps. The other method creates a network from a selected entity and its neighbors.

Creating a New Network

> Open the drop-down menu for **Networks** in the toolbar, and select **New Network**. The network opens immediately in the main space. It is recommended to change the default name in the inspector.



Another option is to open the Network Manager and to create a new network there by clicking on the plus button.

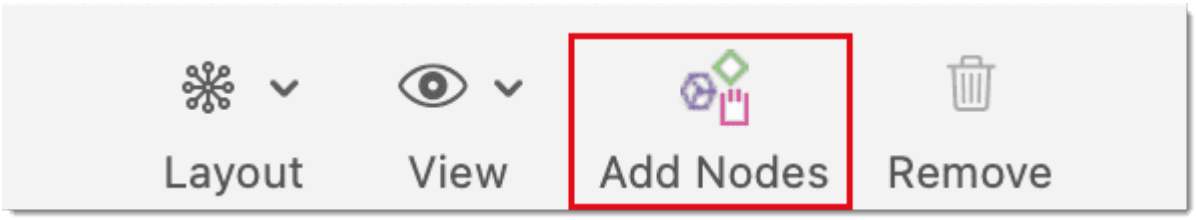


Adding Nodes to a Network

You can add nodes via the **Add Nodes** button in the toolbar, or via drag-and-drop.

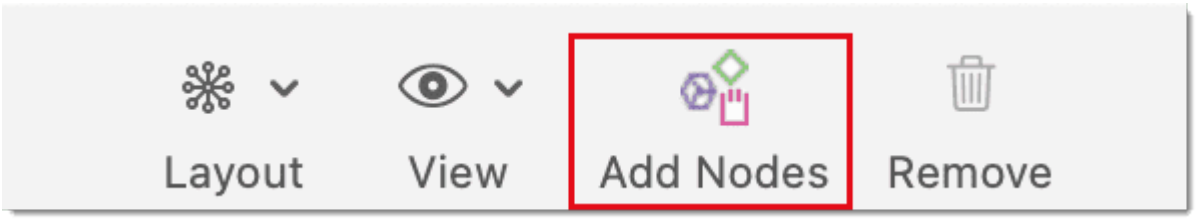
Adding Nodes Using the Selection List

Click on the Add Nodes button in the toolbar.



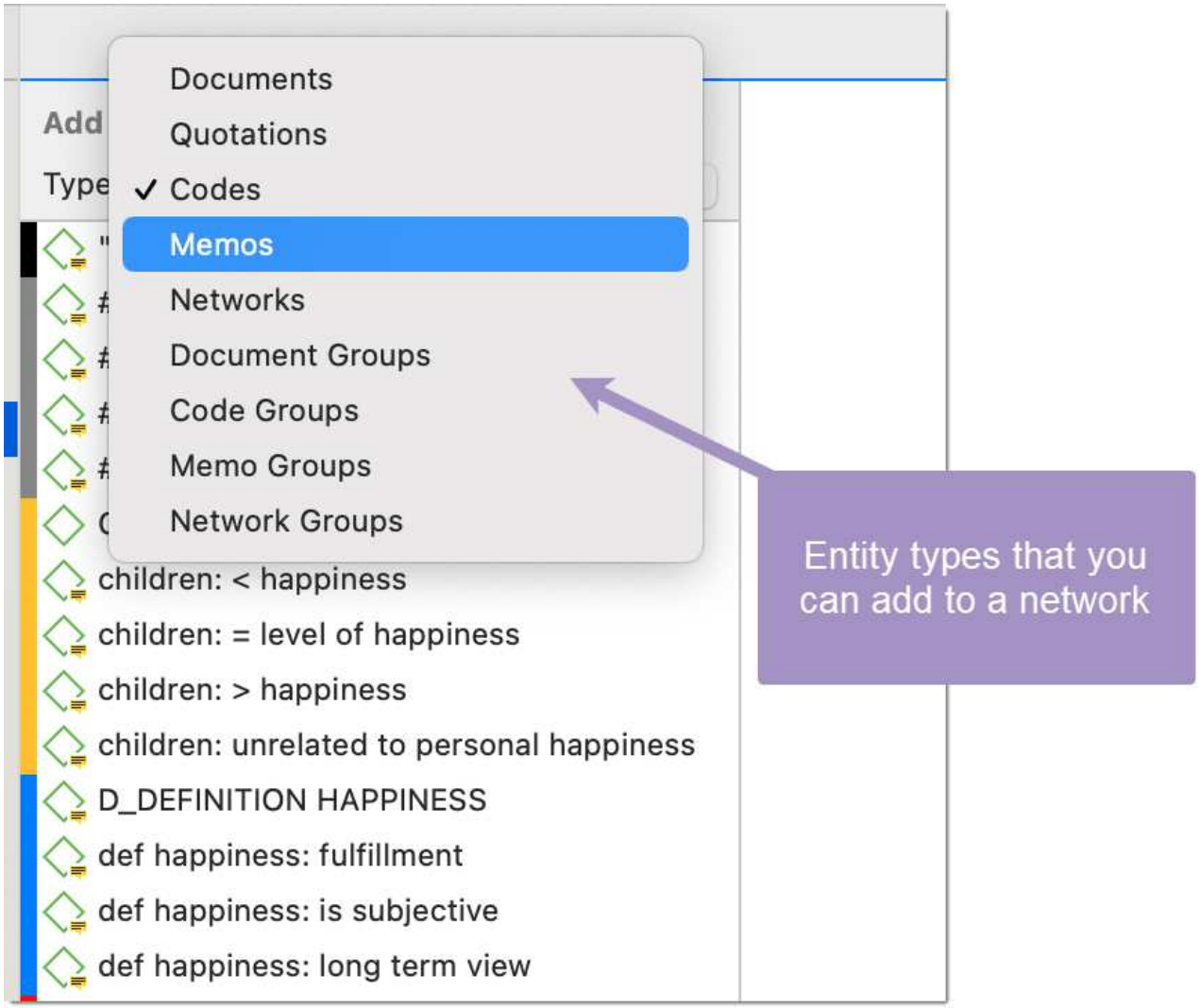
Adding Nodes Using the Selection List

Click on the Add Nodes button in the toolbar.



This opens a selection list that is docked to the left-hand side of the network. At the bottom of the selection list you see the comments of an entity. Use the search fields to find entities faster.

Select the entity type and then the entities that you want to add to the network. Double-click to add the entity to a network; or drag-and-drop the selected entities to the network; or click on the Add button.

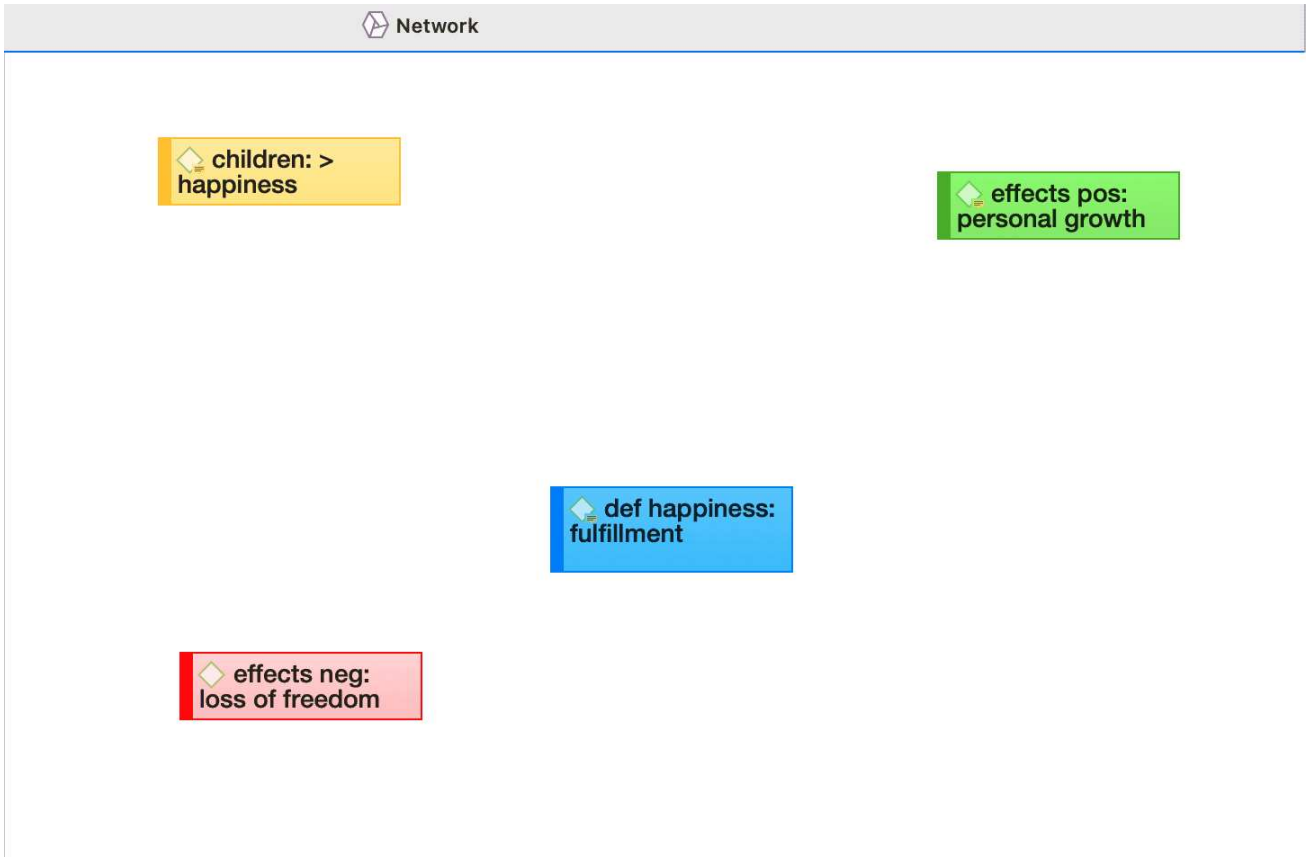


Adding Nodes via Drag & Drop

You can add nodes by dragging entities into the network editor from entity managers, group managers, the margin, the project explorer, or any of the browsers.

> Open a network and position it for example next to the Project Explorer.

> Select the node(s) you want to import into the network and drag-and-drop them into the editor.



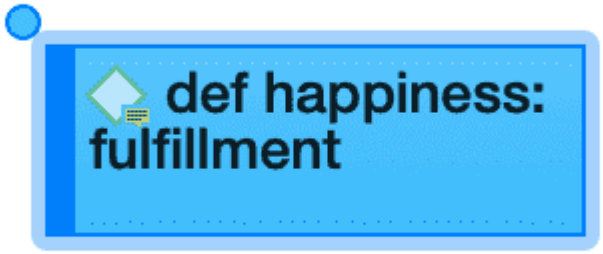
Selecting Nodes

Selecting nodes is an important first step for all subsequent operations targeted at individual entities within a network.

Selecting a Single Node

> Move the mouse pointer over the node and left-click.

All previously selected nodes are deselected.



Selecting Multiple Nodes

Method 1

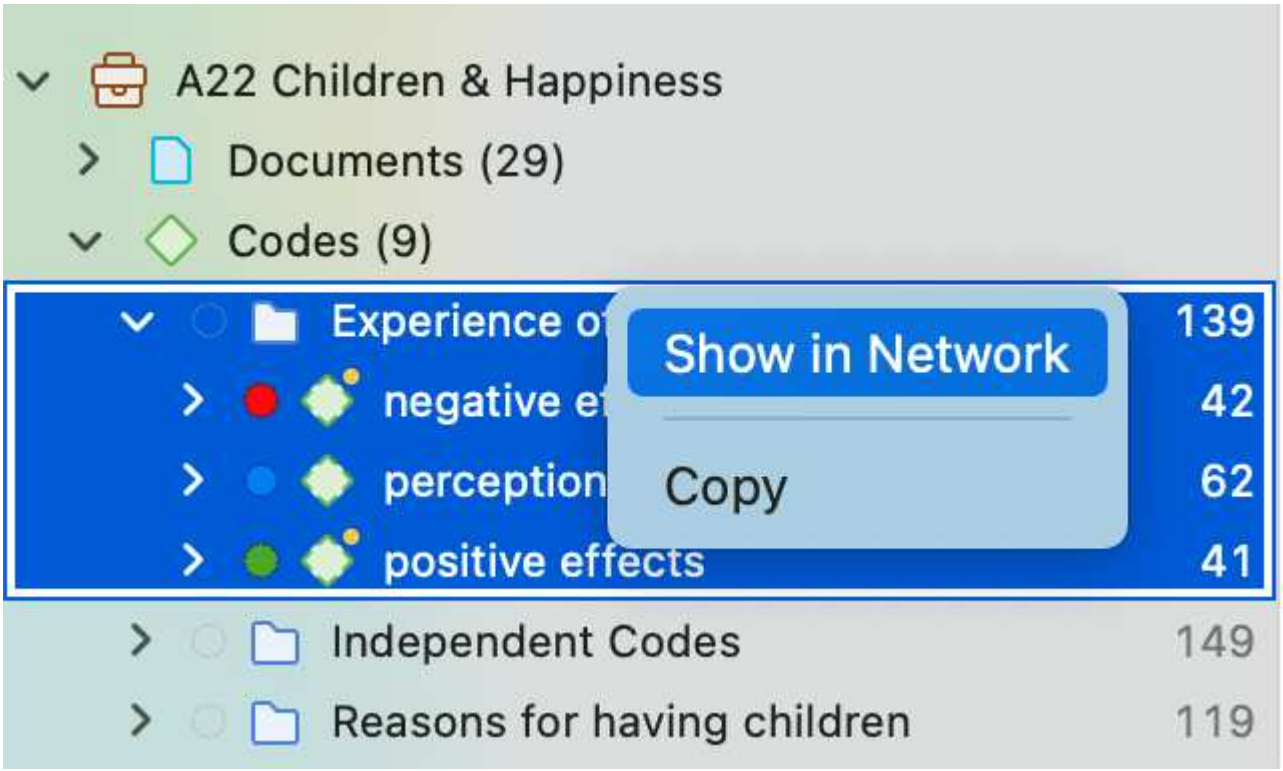
> Hold down the **cmd** key on your keyboard, move the mouse pointer over the node and left click. Repeat this for every node you want to select.
> Method 2
> This method is very efficient if the nodes you want to select fit into an imaginary rectangle.

> Move the mouse pointer above and left to one of the nodes to be selected. Hold down the left mouse button and drag the mouse pointer down and right to cover all nodes to be selected with the selection marquee. Release the mouse button.

Opening Ad-hoc Networks

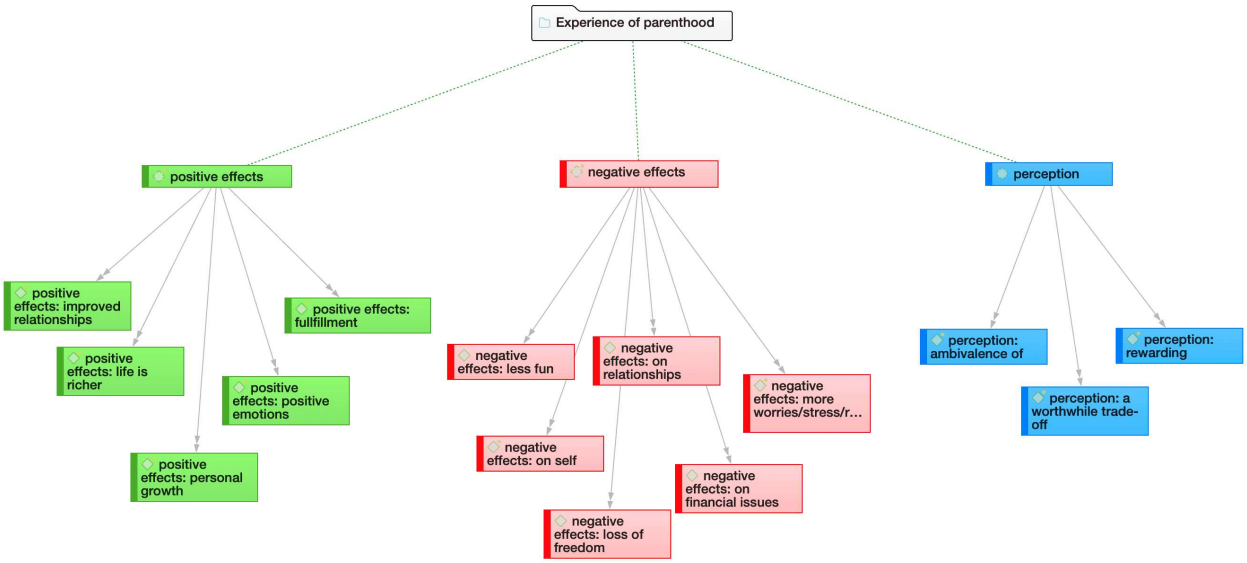
An ad-hoc network is when you open a network on an entity. This will show the entity in a network with all the directly linked neighbors, except when you open a network for a document or multiple items. In the latter two cases, only the selected entities open in a network. More nodes can be added to such networks using different techniques. See Adding Nodes To Network and Adding Neighbors.

> Select an entity in the margin area, a manager, the project explorer or any browser, right-click and select Show in Network.



The nodes are initially placed using a default layout procedure, but can be rearranged manually or using any of the other layout procedures. See Layout And Routing.

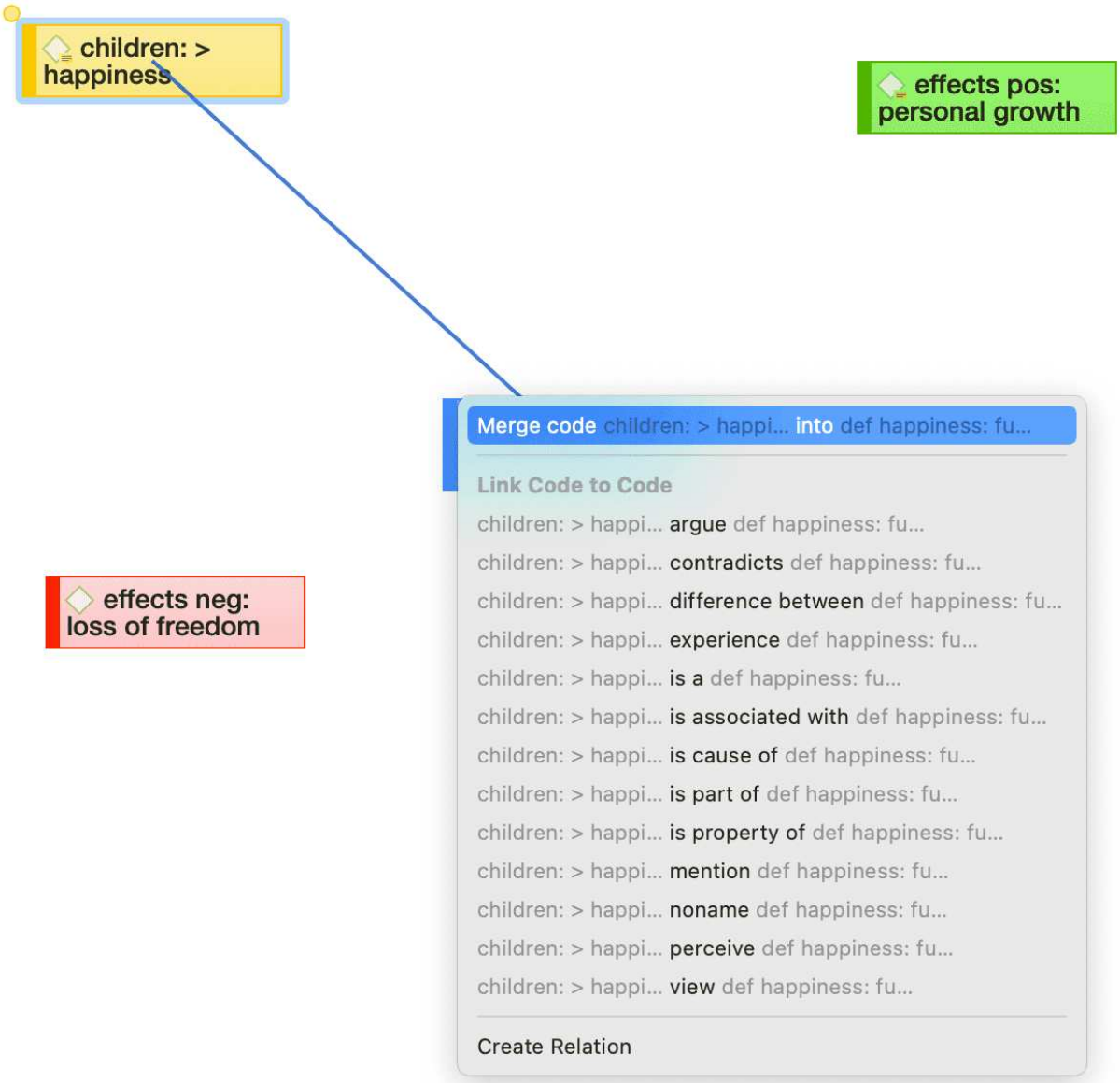
Below you see an ad-hoc network of a folder containing three categories and their subcodes.


Experience of parenthood
positive effects
negative effects
perception
positive effects: improved relationships
positive effects: life is richer
positive effects: positive emotions
positive effects: fulfillment
positive effects: personal growth
negative effects: less fun
negative effects: on relationships
negative effects: more worries/stress/r...
negative effects: on self
negative effects: on financial issues
negative effects: loss of freedom
perception: ambivalence of
perception: rewarding
perception: a worthwhile trade-off

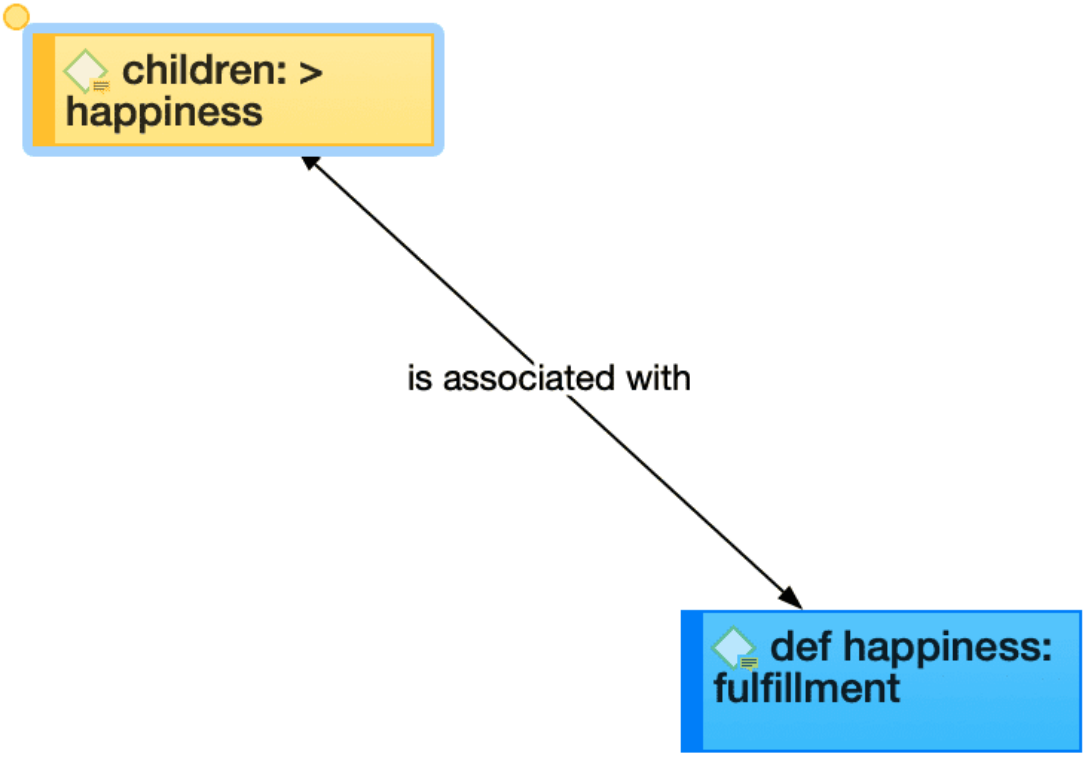
Linking Nodes and Entities

> Select one or more nodes. A dot appears in the top left corner of the node(s). Click on the dot with the left mouse button and drag the mouse pointer to the node that you want to link. In case you have highlighted more than one node, you need to select the dot of one of the nodes.

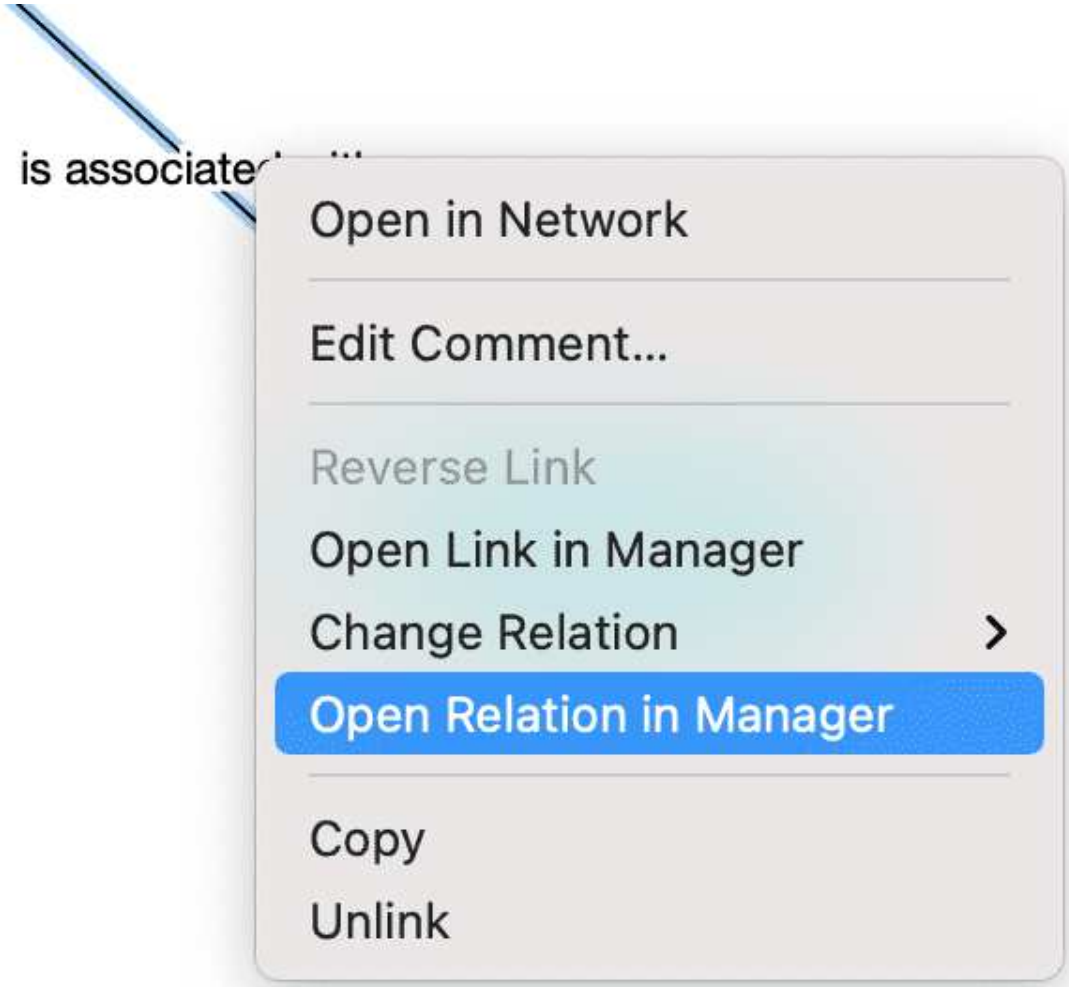
> Release the left mouse button on top of the node. If you link codes to codes or quotations to quotations, a list of relation opens. Select a relation.



The two nodes are now linked to each other. In case you linked two codes or two quotations to each other, the relation name is displayed above the line.



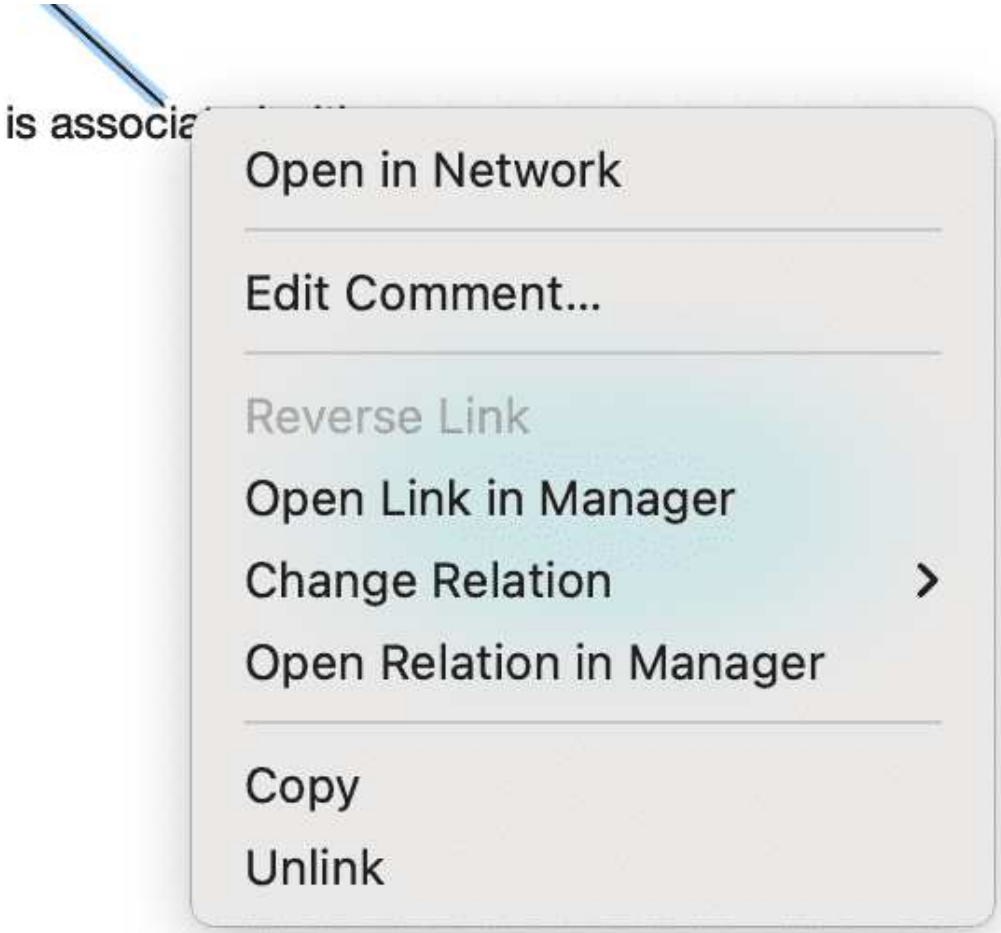
If none of the existing relations is suitable, select Create Relation and create a new relation. The new relation will immediately be applied to the link.



Editing a Link

Click on a link. If the link has a relation, click on the relation as this makes it easier to select it. A selected link is displayed in blue.

Right-click and open the secondary menu. For a named relation, you have the following options:

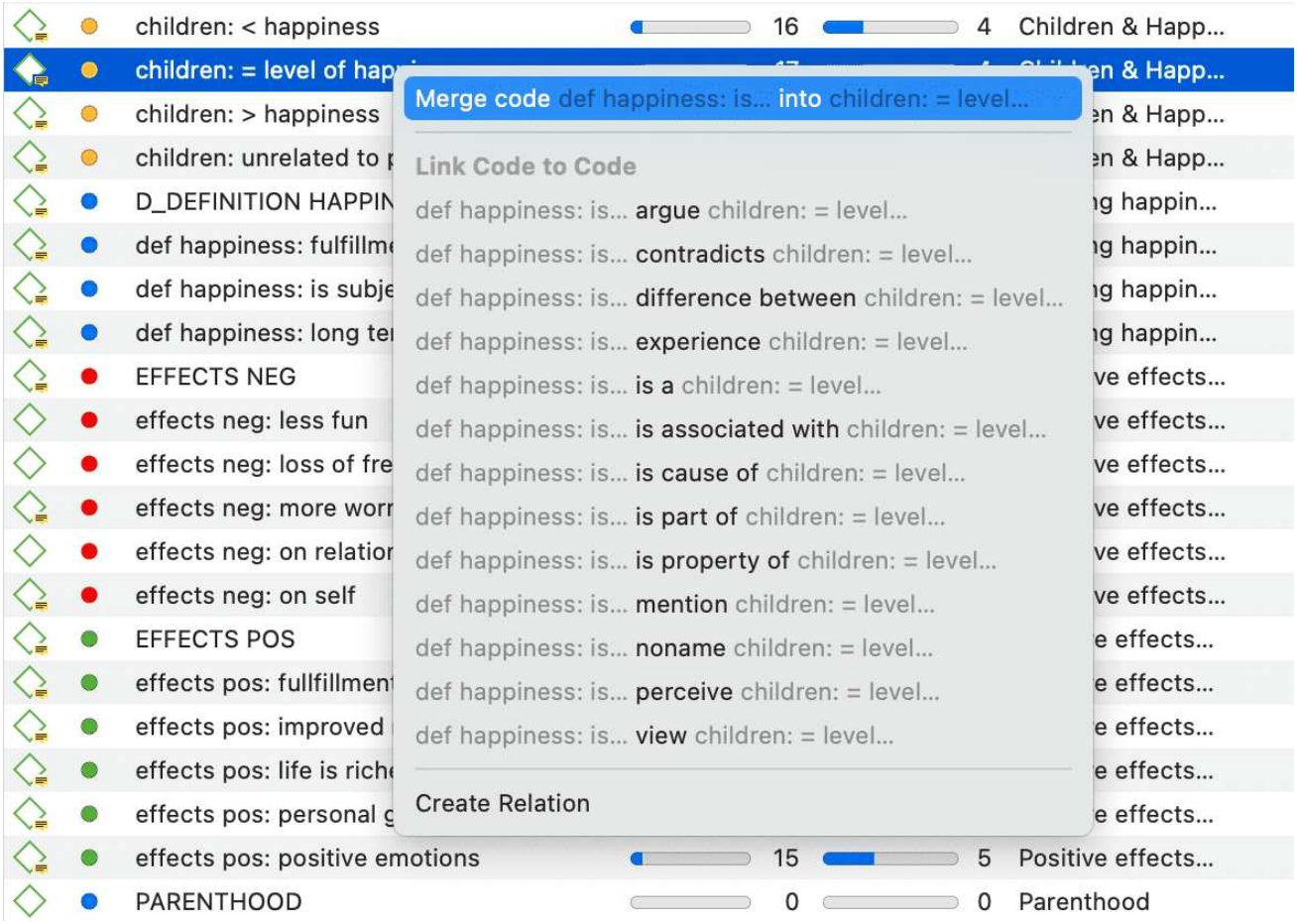


- **Edit comment:** Use the comment field to explain why these two nodes are linked.
- **Reverse link:** Use this option if you want to change the direction of a transitive or asymmetric link.
- **Open in Link Manager:** THe Link Manager for codes lists all code-code links; the Link Manager for quotations lists all hyperlinks. In the Link Manager you can review all links, filter by relations, write comments or modify relations.
- **Change Relation:** Select a different relation from the list of available relations or create a new one and apply it.
- **Open Relation in Manager:** to review and modify existing relations, or to create new relations.
- **Copy:** This creates a plain text description of the relation between the two entities that you paste into a comment, memo or text editor.
- **Unlink:** Removes the link between the two nodes.

Linking Codes to Codes, Quotations to Quotations, Memos to Memos in Managers and Browsers

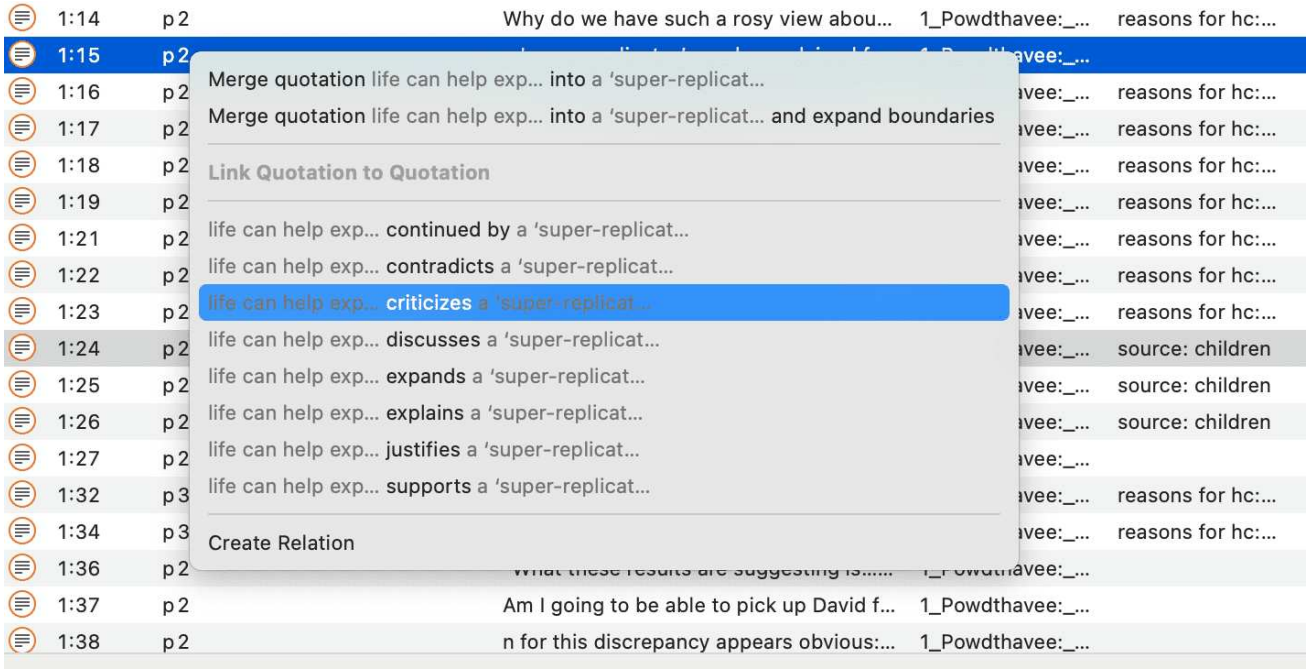
Quotations, codes and memos can also be linked to each other elsewhere, for example in the Manager, the Project Explorer, or the respective entity browsers.

> Select one or more source items in the list pane of the Manager, in the respective sub-branches of the Project Explorer, or in the entity browsers and drag them to the target item in the same pane.



Linking two codes in the Code Manager

> Select a relation from the list of relations in case you link two codes or two quotations, or select Create Relation and create a new relation.



Linking two quotations in the Quotation Manager - Creating a hyperlink

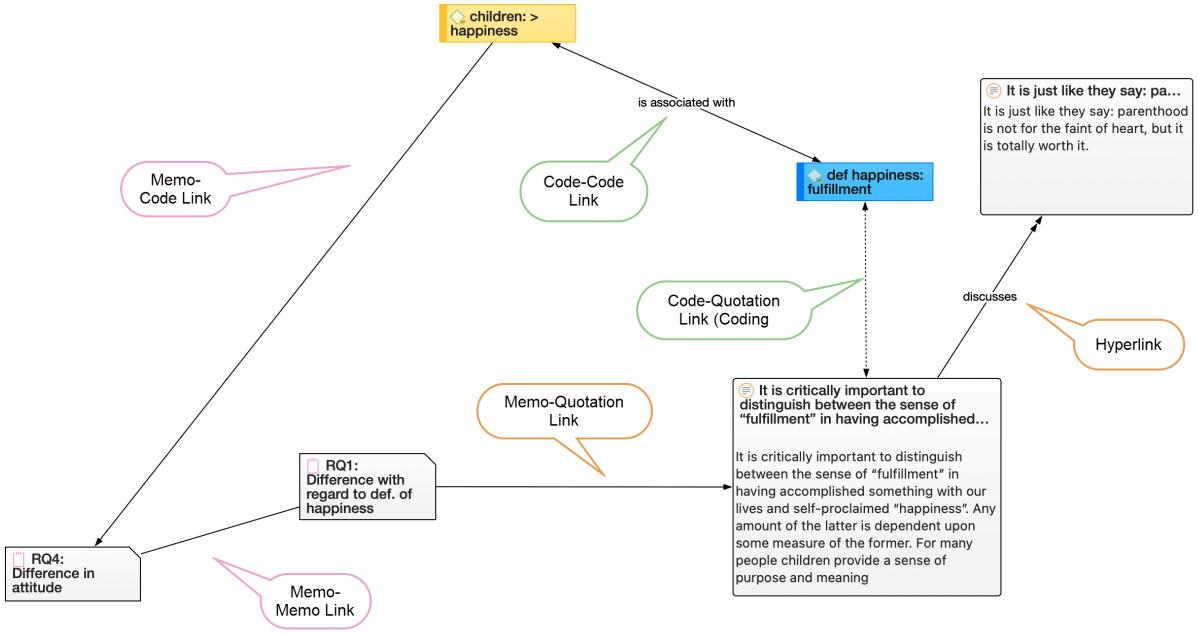
Linking Entities of Different Types

When you code your data reading through a document, listening to audio data, viewing an image or video file, you are linking codes to quotations. You can also link quotations to codes in a network, but this is more exceptional rather than a regular procedure.

Linking a memo to a code in a network, or a memo to a quotation might be something you do more often. It works basically the same as linking two codes to each other. The difference is that you cannot name the link between memos and codes, or memos and quotations, or memos and memos. These are second class links as is explained in section About Nodes and Links

Note, that the following entities cannot be linked to each other:

- quotations to documents
- memos to documents (use a document comment instead)
- codes to documents (you can however view code-document connections, see View options)
- codes to code groups, document to document groups, or memos to memo groups (if you do so, the code / document / memo will become a member of the respective group)
- groups to each other (as for instance a code can be a member of multiple code groups, this would potentially create circular relations)


children: > happiness
is associated with
It is just like they say: pa…
It is just like they say: parenthood is not for the faint of heart, but it is totally worth it.
Memo-Code Link
Code-Code Link
def happiness: fulfillment
Code-Quotation Link (Coding
discusses
Hyperlink
Memo-Quotation Link
It is critically important to distinguish between the sense of “fulfillment” in having accomplished…
It is critically important to distinguish between the sense of “fulfillment” in having accomplished something with our lives and self-proclaimed “happiness”. Any amount of the latter is dependent upon some measure of the former. For many people children provide a sense of purpose and meaning
RQ1: Difference with regard to def. of happiness
RQ4: Difference in attitude
Memo-Memo Link

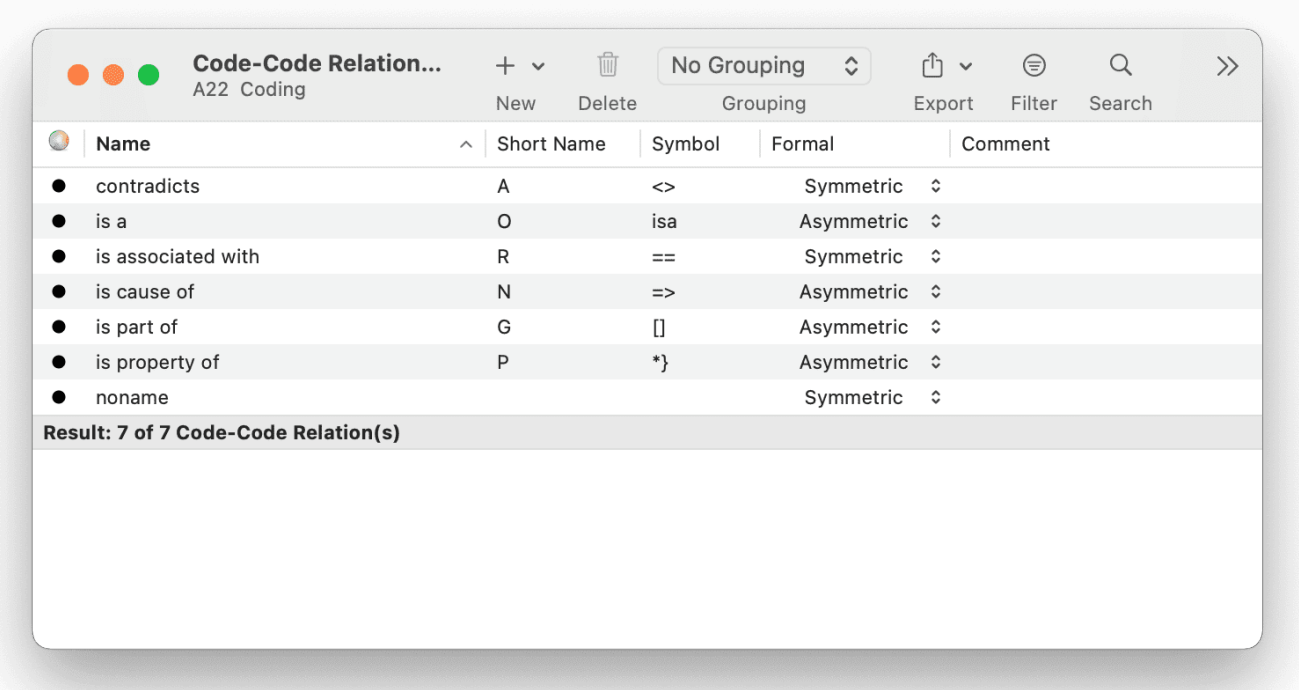
Creating & Modifying Relations

User-defined relations are available for code-code and quotation-quotation links. All other links cannot be named.

New relations are created in the Relation Manager. You can define how a relation should look like in terms of color, width and line style. Further you can select the layout direction and the property. The property defines whether a relation is directed (transitive, asymmetric), or non-directed (symmetric). See About Relations.

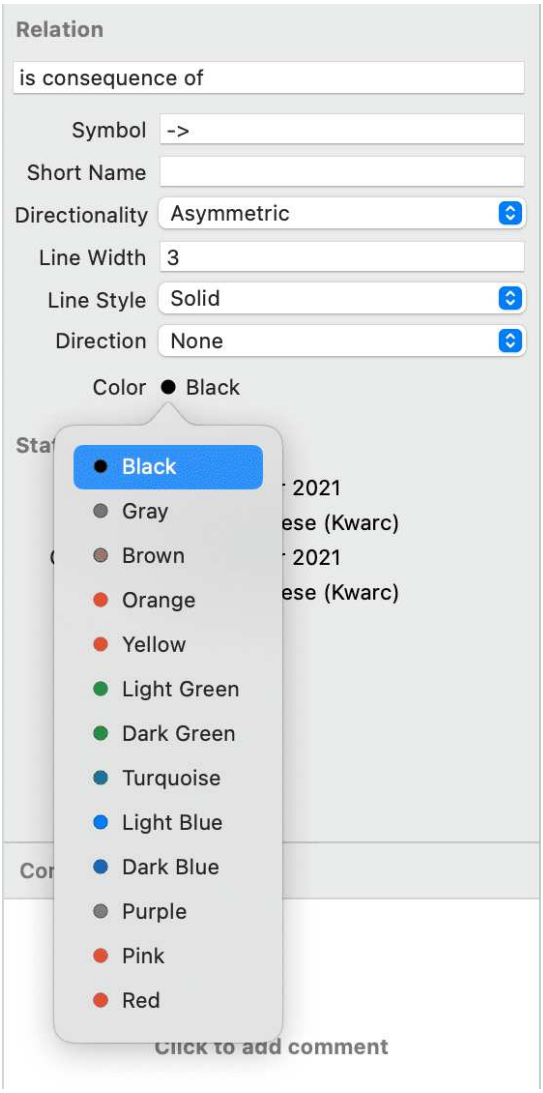
Creating New Relations for Code-Code Links

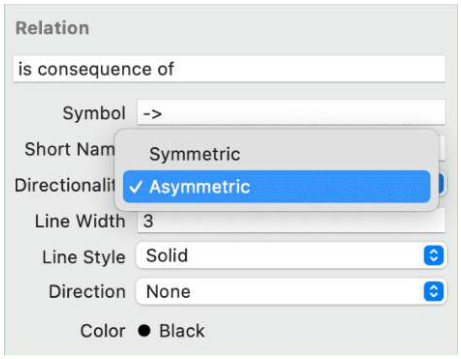
From the main menu, select Code > Show Relation Manager.

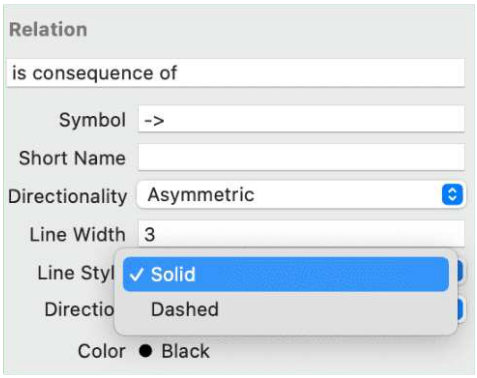


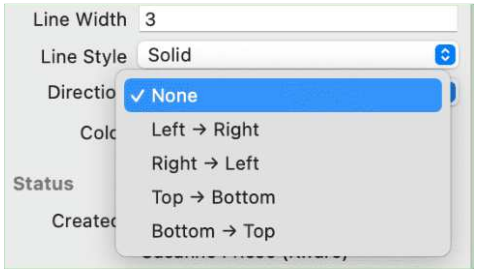
Click on the plus button and enter a name for the relation.

On the right-hand side in the inspector, you can define the relation:





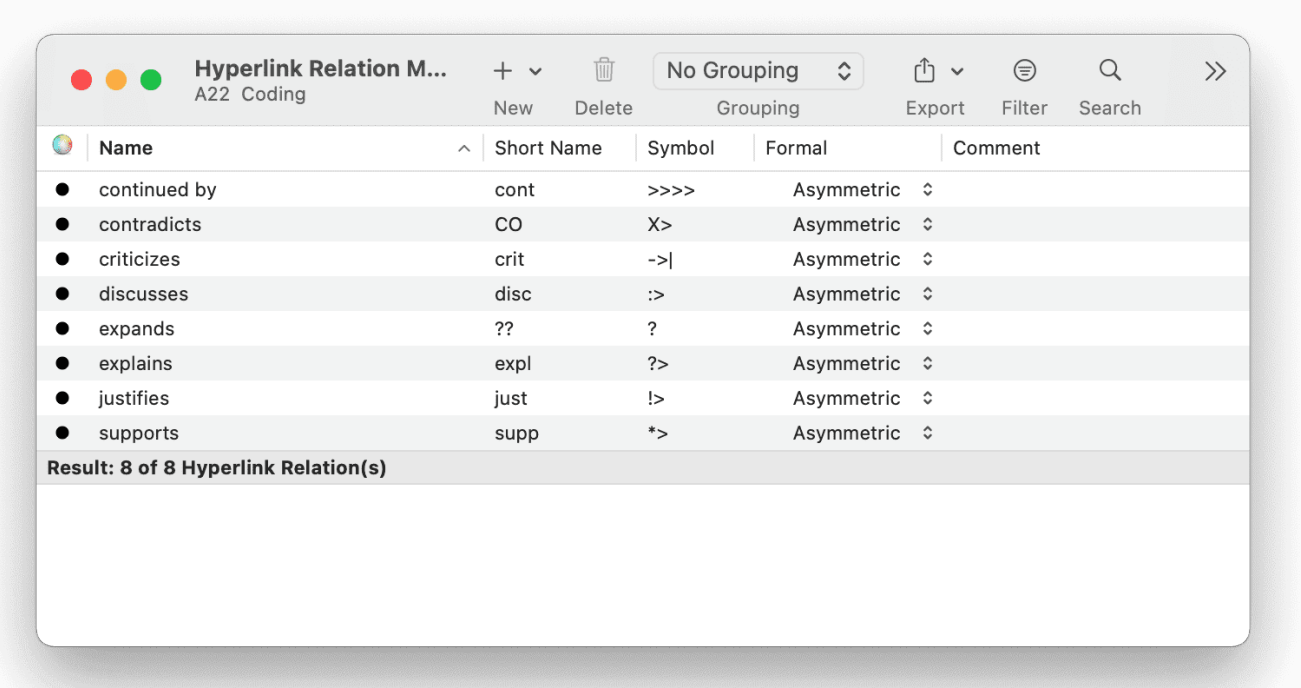




- enter a symbolic or short name. These can be used as alternative display options. Instead of the short name, you could also enter a name in a different language in cases you have projects in different languages. This way, you do not have to create a new set of relations for every language you are using.
- Define a formal property: symmetric or asymmetric. See About Relations for further information.
- Set a line width, for instance to indicate the strength of a relation.
- Select a line style, direction and color.

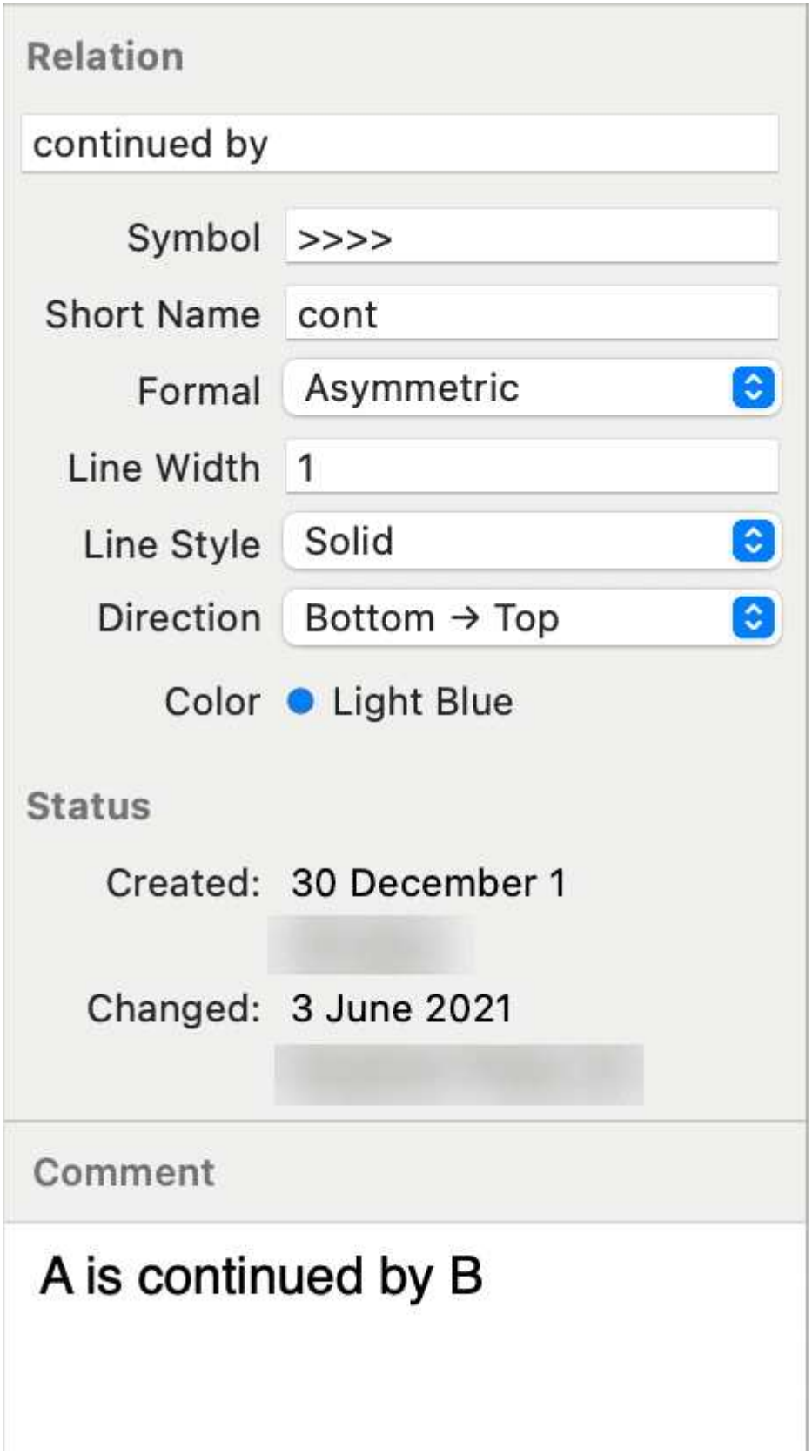
Creating New Relations for Hyperlinks

> From the main menu, select Quotation > Show Relation Manager.



Click on the **plus** button and enter a name for the relation.

On the right-hand side in the inspector, you can define the relation:



- enter a symbolic or short name. These can be used as alternative display options. Instead of the short name, you could also enter a name in a different language in cases you have projects in different languages. This way, you do not have to create a new set of relations for every language you are using.
- Define a formal property: symmetric or asymmetric. See About Relations for further information.

- Set a line width, e.g., you can use different line width to indicate the strength of a relation.
- Select a line style, direction and color.

New relations are stored together with the project in which they are used. Thus, you can create a unique set of relations for each project.

Editing Existing Relations

> To modify an existing relation, open the Relation Manager for codes or quotations (see above).

> Select the relation that you want to modify and change its properties like the line color, the line width, the line style, layout direction or property. You can also rename the relation. You find all options in the inspector on the right-hand side.

If the relation you are modifying is already in use by the currently loaded project, the changes will take immediate effect and are stored along with the project when saving it.

Analytic Functions in Networks

The Network tool is an analytical tool in itself. You will learn a lot about your data by building conceptual networks. The two options that we would like to present here are:

- Add Neighbors
- Add Co-occurring Codes

These two options are the visual equivalent of the Code-Document Table and the Code Co-occurrence Table.

For both options it is often useful to set a global filter first as otherwise too many items are imported. This results in a very crowded network that might look nice but is of little analytical value. See Applying Global Filters.

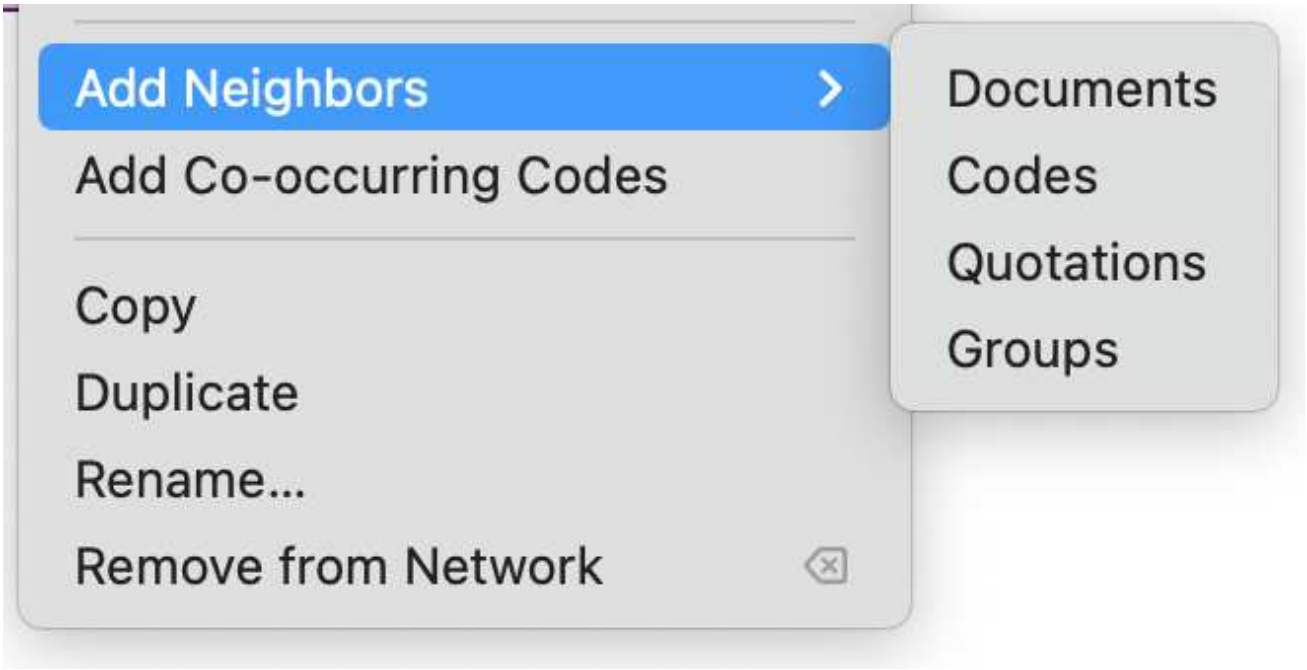
Add Neighbors

The **add neighbors** option allows you to construct a connected network step-by-step. It imports all direct neighbors of the selected nodes into the network.

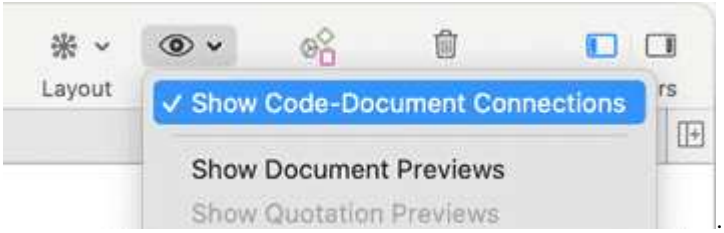
- When applying it to document nodes, it is the visual equivalent to the Code Document Table. ATLAS.ti draws a blue lines between the codes, and the documents / document groups in which they occur.
- When applying it to hyperlinks, it allows you to bring into a network all connected quotations.
- When applying it to codes, you can successively bring in connected codes to support data modelling and theory building.

How to add neighbors

> Select one or more nodes, right-click and select the option **Add Neighbors** from the context menu and then the type of entity that you want to import.



For documents when adding codes, make sure that **Show Code-Document Connections** is selected under View in the toolbar.



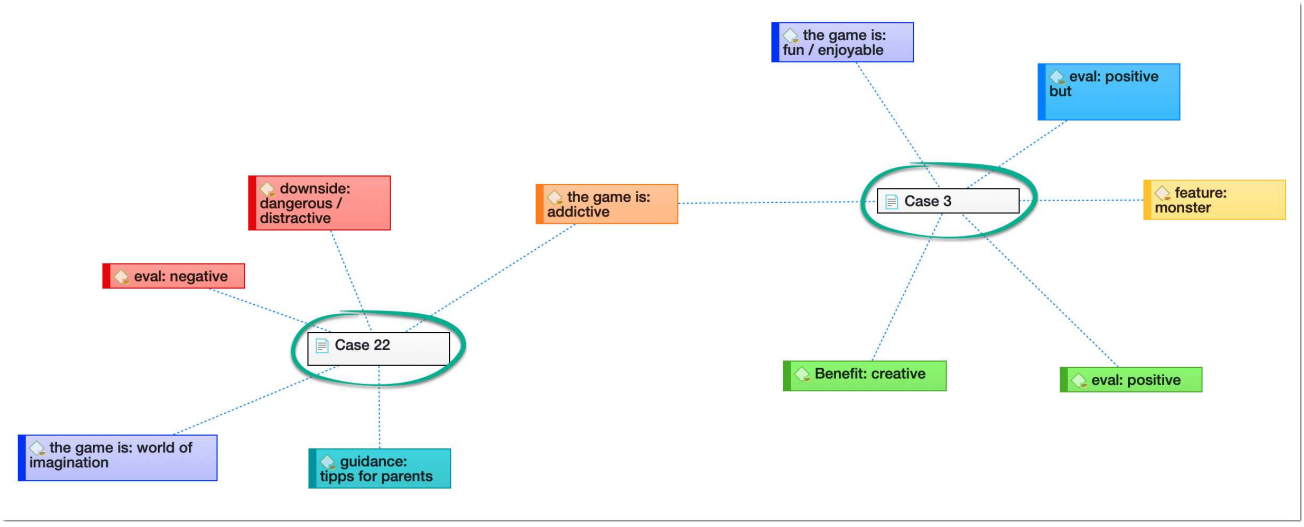
Depending on the entity type, possible neighbors are:

- Documents
- Quotations
- Codes
- Memos
- Groups

The option **all common** imports all those that are applicable.

Application: Comparing Cases

Adding code neighbors to a document node, or a document group node allows creating case-based network. You can ask questions like: Which of the codes have been applied in which document or document groups. ATLAS.ti draws a blue lines between the codes, and the documents / document groups in which they occur. Make sure that **Show Code-Document Connections** is selected in the View options.



When you have applied lots of codes to a document, it is useful to set a global filter when adding codes. Otherwise, your network will be too crowded, and it will be difficult to interpret it or to see any meaningful pattern. See Applying global Filters.

Add Co-occurring Codes

The **add co-occurring codes** option is the visual equivalent of the Code Co-occurrence Tools. It allows you to explore code co-occurrence spatially, which is different from looking at numbers in a table, and different from exploring code co-occurrence in a Sankey diagram. The recommendation is to use these functions in combination to look at data from different perspectives in the sense of a triangulation.

Co-occurring codes are those that code the same or overlapping quotations. When importing co-occurring codes, ATLAS.ti checks all five possible ways that a code can co-occur:

- quotations coded with a code A **overlap** quotations coded with a code B
- quotations coded with a code A **are overlapped by** quotations coded with a code B
- quotations coded with a code A **occur within** quotations coded with a code B
- quotations coded with a code A **enclose** quotations coded with a code B
- quotations coded with a code A **code the same** quotations coded with a code B

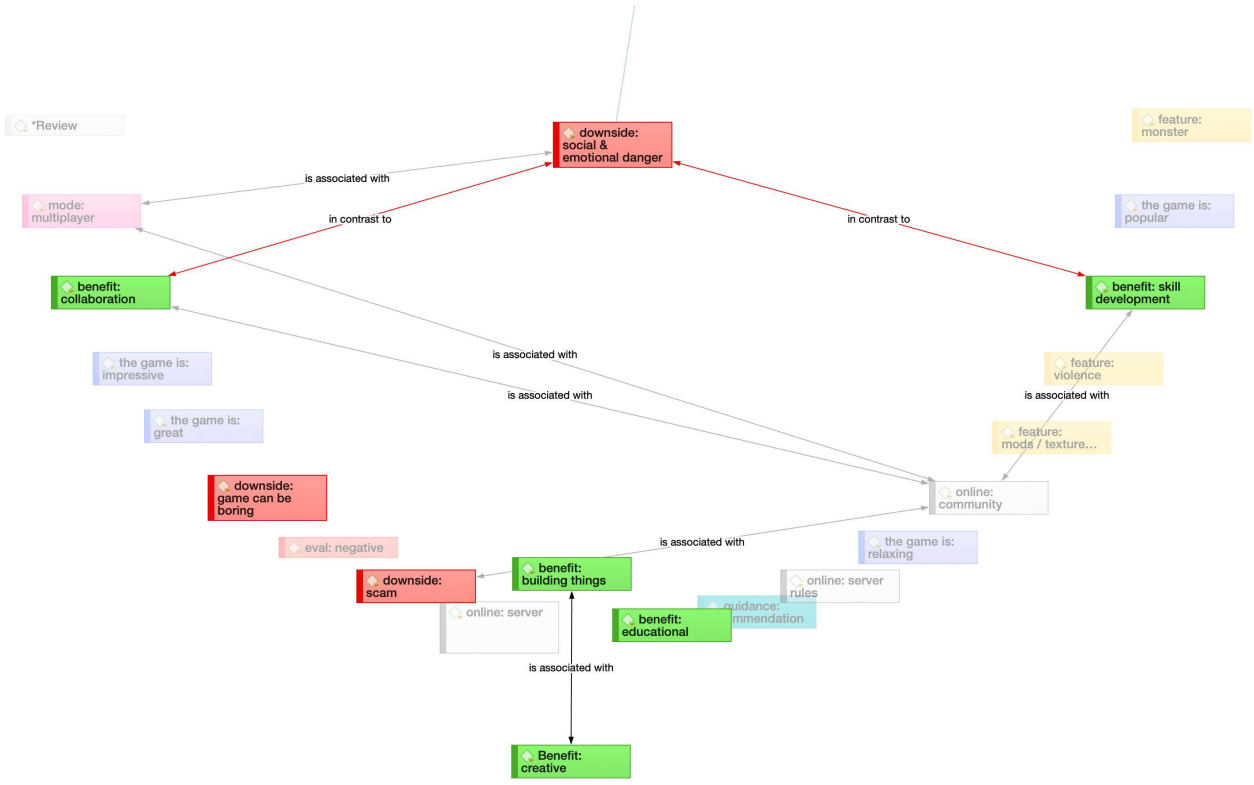
See Available Operators > Proximity Operators.

> Select one or more codes in a network editor, right-click and select Add Co-occurring Codes.
> tip
> You can view the co-occurring codes without adding them to the network by

> right-clicking the codes you're interested in and choosing one of the co-occurrence options from the Analysis submenu.

In order to achieve meaningful results, it is often useful to set a code group as global filter first. Think about which concepts you want to relate to each other and add those to a code group. See Applying Global Filters.

Below you see a network with global filter setting. Only the full colored nodes pass the filter. It helps you to focus on what is relevant in your network:



Exporting Networks

Networks can be printed, or saved as PDF file.

> Open the network.

> From the main menu select **Project > Print.** Click on **Show Detail** to change the orientation and other options. Either select the print, or the PDF option.

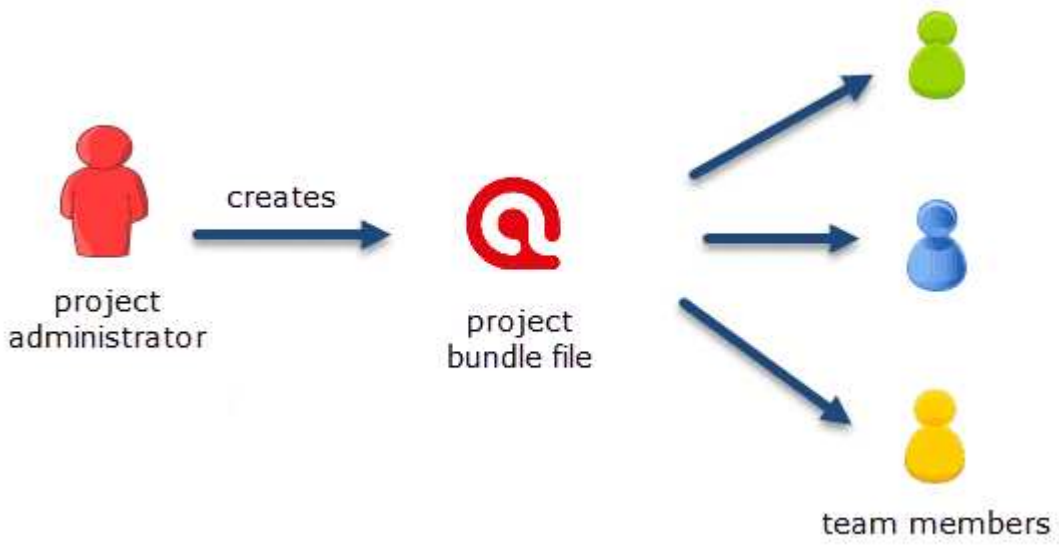
Team Work

The kind of team work supported is asynchronous shared coding and analyzing. This means if you have a lot of data you can spread the coding work across different team members. Each team member codes parts of the data, and the work of all coders is put together via merging the various subprojects.

Each team member needs to work on his or her copy of the project. The location where the project data for each user is stored can be selected. However, this is always a personal, not a shared space. See Working with ATLAS.ti Libraries.

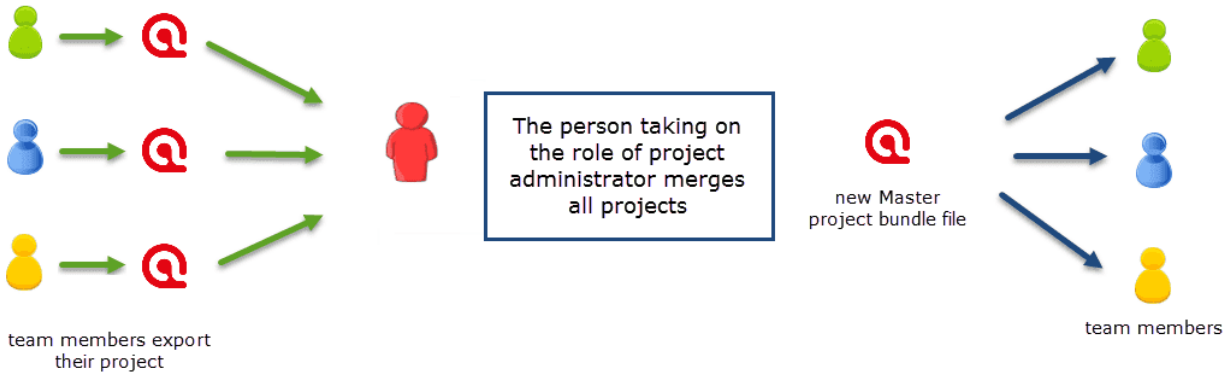
When working on a team project, team members **must not edit** documents (unless everyone works in different documents). If team members edit the same documents, these cannot be merged; instead they are duplicated. If document editing is necessary, this needs to be done by the project administrator in the Master project!

Workflow



1. The project administrator sets up a **Master project**. See Creating a New Project.
2. The project administrator adds documents to the project and possibly a list of codes.
3. The project administrator saves the project and exports it. This means creating a project bundle file
4. All team members import the project bundle file and begin their work.

5. To combine the work of all team members, each team member creates a project bundle file and sends it to the project administrator.



6. The project administrator merges all subprojects, and creates a new Master file.
7. The project administrator exports the new Master file and distributes it to all team members. See Transfer Projects.
8. The team members continue their work.

This cycle continues. If new documents need to be added to the project, this needs to be done by the project administrator. A good time for doing this is after merging and before creating the new Master file.

You find step-by-step instructions here:

- for project administrators
- for team members

Important to Know

- If all team members should work on the same documents, it is essential that only the project administrator is setting up the project adding all documents. Otherwise, the documents are duplicated or multiplied during the process of merging. See Adding Documents.
- Team members **must not edit** documents. If they do, the edited documents cannot be merged, and you end up with duplicates. If document editing is necessary, this needs to be done by the project administrator in the Master project!
- The location of where ATLAS.ti stores project related data can be determined by each user. See Working with ATLAS.ti Libraries.
- Document libraries CANNOT be shared. Each person always works with her/his own copy of the data set within her/his own environment of ATLAS.ti.

Our support team will reject any repair requests that are caused by attempts to share libraries.

User Accounts

ATLAS.ti automatically creates a user account based on the name that you use on your computer.

To check who is currently logged in:

> From the main menu, select **Project** > **User Management** > **Show User Manager**.

Creating a New User Account

A reason for creating a new user account is for instance if two persons on a team have the same name, or if you want to use a different name than the automatically assigned name.

> In the User Manager, click on the **plus (+)** button and enter a username. You can set a password, but it is not required. Click **ok** to save the new user.

Merging Users

If you have been working on different computers and use different usernames, there could be two or more usernames that all refer to the same person. You can simply merge them in the User Manager by dragging the user account you do not want to keep onto the user account you want to keep.

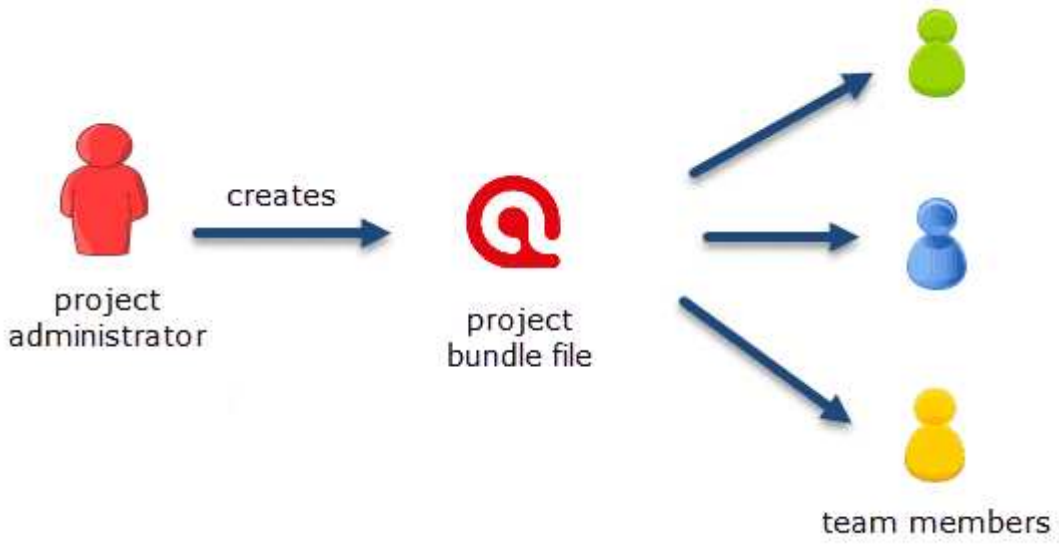
User Accounts

> From the main menu, select **Project** > **User Management** > **Change User**. Open the drop-down menu next to the username and select a different user. Click **ok**.

When merging projects that come from different computers and that use the same username, the username will be duplicated, e.g., Tom and Tom (2). This means you can still distinguish the two users. However, it may be a bit cumbersome to always remember who is who.

Setting Up a Team Project

When you work in a team with shared document and codes, you need to start with a MASTER project that contains all documents and codes that you want to share with your team. See Work Flow. If all team members start independently, you end up with duplicate documents and codes after merging the projects.



The instructions are organized by the various tasks involved when working in a team. Below you find operating instructions for project administrator. For team member instructions, see Tasks for Team Members.

Tasks of the Project Administrator

Creating and distributing the project

> If you open ATLAS.ti, select the **New Project** button from the Welcome Screen.

Alternatively:

> If a project is already open, select **Project > New** from the main menu.
> Inst
> Enter a project name and click **Create.**

> Next, add everything that should be shared by the team:

- add documents. See Adding documents to a project.

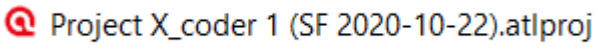
- create document groups. See Working with groups.
- add codes and code groups. You can prepare a list of codes including code descriptions, code groups and colors in Excel and import the Excel file. See Importing A List Of Codes.

If a common set of codes and code groups is to be used, they must be added to the project at this stage. If each team member were to add codes and code groups individually to each subproject, all codes and groups are multiplied during the merge.

> To save a project, click on the **Save icon** in the Quick Access toolbar, or select **File > Save** (Short-cut: cmd+S).
> Inst
> To export the project for distribution to all team member, select **Project > Export > Project**. See also Project Transfer.
> Inst
> **Distribute the project bundle file to all team members:** e.g., via email, a folder on a server that everyone can access, or also via a cloud link or cloud folder.

The project bundle file shows the ATLAS.ti icon, has the file extension **.atlproj** and can be read by both ATLAS.ti Windows and Mac.

The default name of the bundle is the project name. It is recommended to add the date to the project bundle file name, so you always know when it was created. If you upload the file somewhere or sent it via email, the download date for the file will be different from the date of creation. Renaming the bundle file, however, does not change the name of the project contained within the bundle. Think of the project bundle file as a box that contains your ATLAS.ti project plus all documents that you want to analyze. Putting a different label on the outside of the box will not change the name of the project file, which is contained inside the box.



Ask each team member to change the name of the project file when importing the project bundle, i.e. adding their name or initial to the project name, so that the projects of the various team members can easily be identified.

Project bundle files can be shared via a cloud services like Dropbox, OneDrive, GoogleDrive, etc. Another option is to upload the project bundle file to a server of your choice and send a link to all team members so that they can download the file.

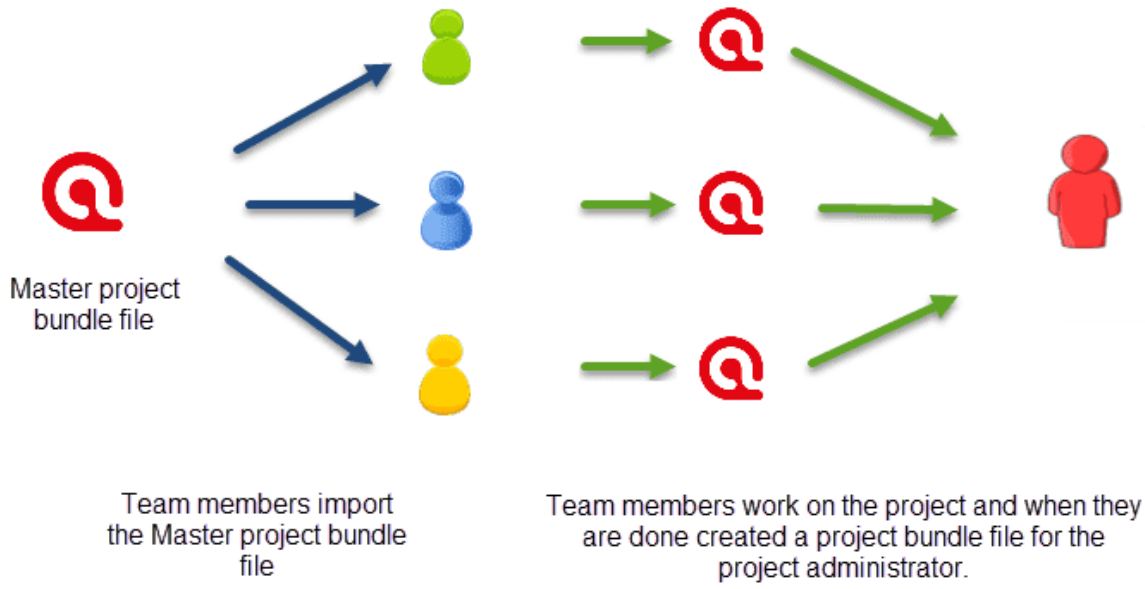
Team Project: Tasks for Team Members

As a team member you **must not edit** documents in a team project. If you do, the document cannot be merged later on, instead it will be duplicated. If text needs to be modified, this needs to be done in the Master Project by the project administrator.

ATLAS.ti automatically creates a user account based on your computer login when you start ATLAS.ti.

> Check your username before you start working. Is this the name you want to use in the team project? If not, modify the name or create a new user account and log in with the new account. See User Accounts.

As team member, you receive a project bundle from the project administrator.



> Save the project bundle file on your computer, or personal space on a server.

> Open ATLAS.ti and select the **Import Project** button. If another project is currently open, select **Project > Import Project** from the main menu.
> inst
> **Rename the project** by adding your name or initials to the project name. This is important for the project administrator later when he or she merges the projects of all team members. If you forget this step, see below how you can rename a project after having imported it.
> If this is the second or third time around that you import the Master project,

> the project name with the added coder name/initials already exists. ATLAS.ti will recognize this and offers the following two choices:

- Keep current project as a snapshot.
- Overwrite existing project.

As you previously exported your project to send it to the project administrator, you already have a backup of your project. Therefore, it will be OK in most cases to overwrite the existing project.

> Make the appropriate choice and click **Import**.

After you have done some work on the project, you need to send it back to the project administrator for merging. This is what you need to do:

> Select **Project** > **Export** > **Project**. See Project Transfer.
> Continue the cycle of project exchange and merging between project administrator and team members as needed.

Renaming Projects after Import

If you forgot to rename the project when importing it, you can change the name after it has been imported:

> From the main menu select **Project** > **Rename Project**.

Merging Projects

The Master project is the project into which another project, called the Import project is merged. The Master project has to be loaded first before invoking the **Merge Project** option.

The default option is to unify all entities that are **identical**, and to add all other items that do not yet exist in the Master project.

> You can only merge ATLAS.ti desktop and ATLAS.ti Web projects if the projects contain different documents and codes. When merging entities, they need to have the same ID and this is only given if you start with a common Master project. As it is currently not possible to import a Desktop project into the Web version, you cannot share a Master project with a person using the Web version. Thus, even if you add the same documents and codes to both Desktop and Web project, the IDs for all entities will be different. When you merge these projects, all entities will be duplicated because they have different IDs rather than merged. Codes can be manually merged by the user, but you cannot merge documents manually.

Identical Entities Explained

When an entity is created in ATLAS.ti - regardless if it is a document, a code, a quotation, a memo, a network, a group, or a comment - this entity receives a unique ID, comparable to a fingerprint.

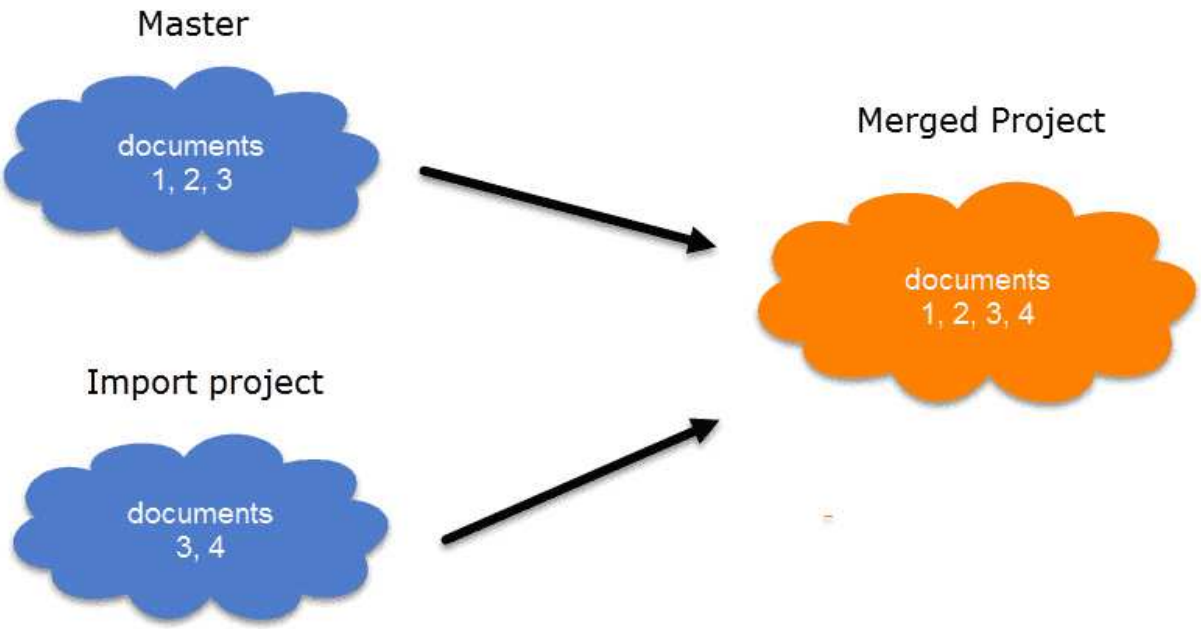
When merging projects, ATLAS.ti compares the IDs of the various entities. If they have the same ID, they are unified. If the ID is not the same, they are added. Thus, the name of an entity is not the decisive factor.

For example: If a user Tom has created a code with the name *sunshine*, and a user Anne also has created a code with the same *sunshine* in her project, these two codes are not identical as they have been created on different computers and in different project. Therefore, they will have a different ID.

If you merge Tom's and Anne's project, the merged project will contain two codes: *sunshine* and *sunshine (2)*. If the meaning of both codes is the same, and you want to keep one sunshine code only, you can merge the two codes manually. See also **Housekeeping** below.

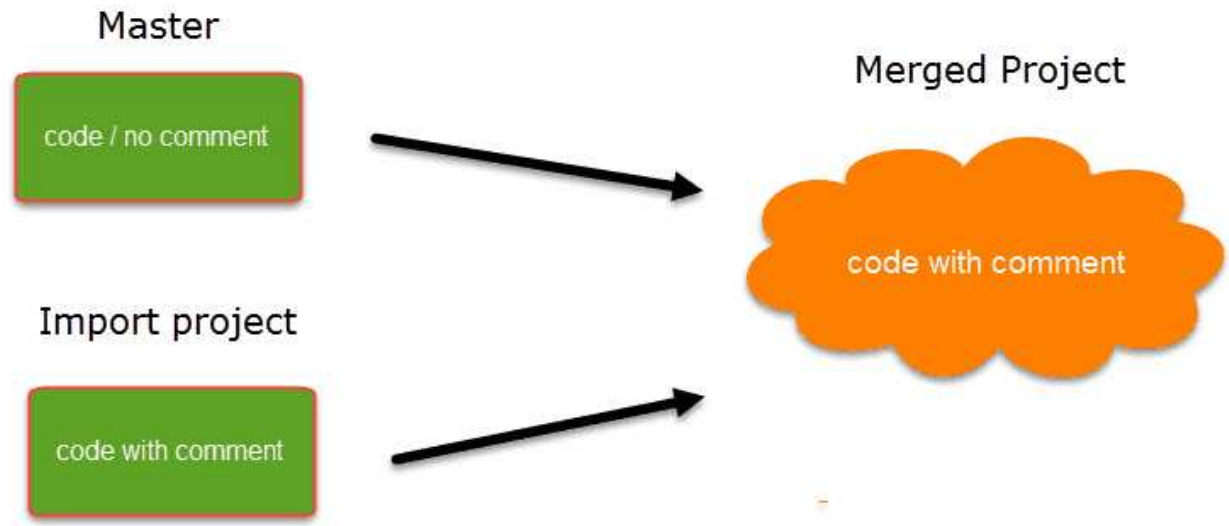
Groups are Additive

A Group B with documents {1, 2, 3} in the Master project merged with a Group B containing documents {3, 4} in the Import project will result in Group B= {1, 2, 3, 4} in the merged project.

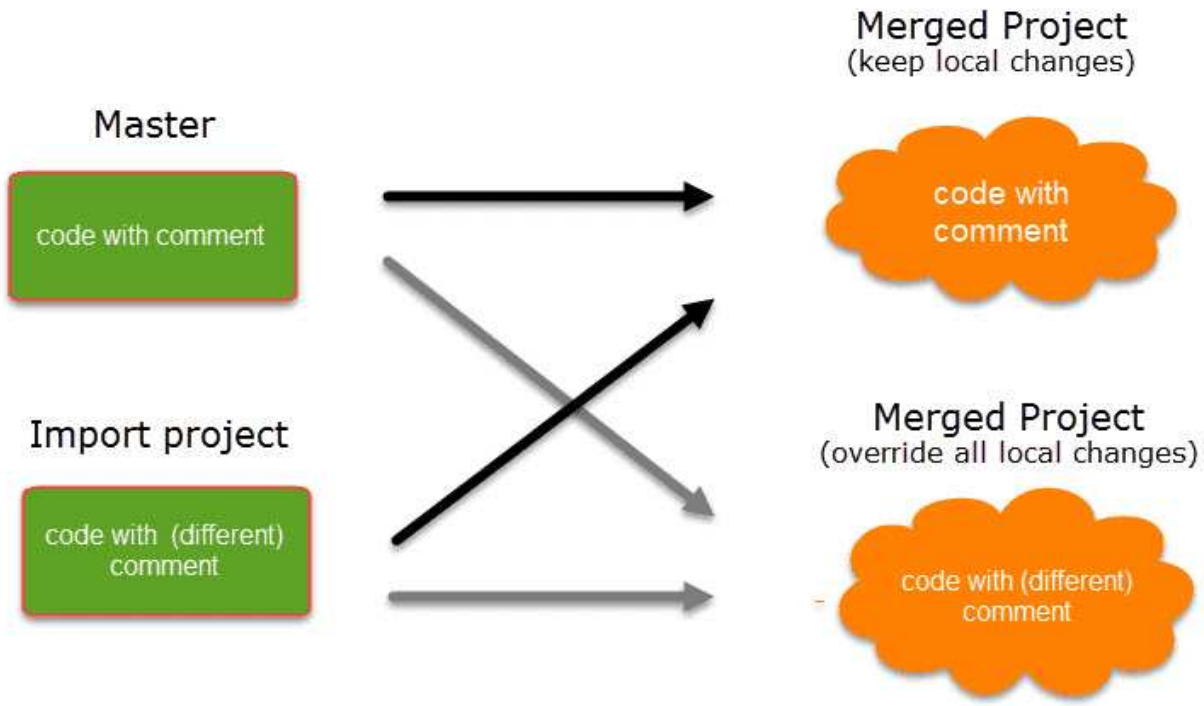


Entities with and without Comments

If there is a code C in the Master project that has no comment, and a code C in the Import project that has a comment, the merged procedure will add this comment to the merged project.



In the case of an unsolvable conflict - code C in the Master project has a comment, and code C in the Import project also has a comment - the user can define which of the two conflicting entities will win.



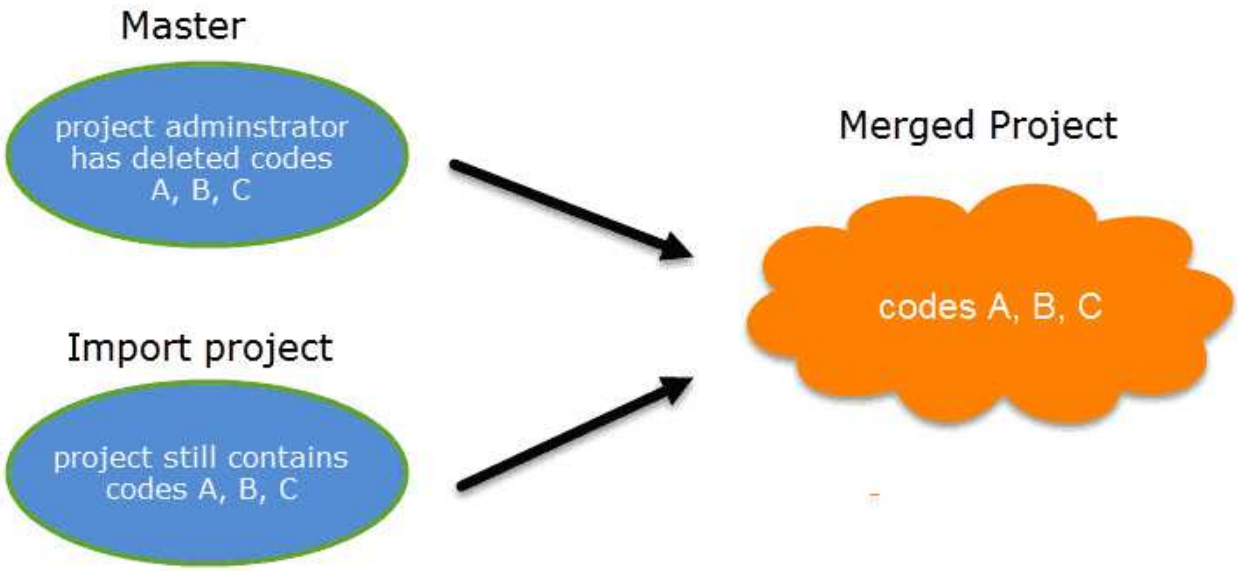
If the comment of the Master project should be kept, you need to select the option **Keep**. If the comment of the Import project should be kept, you need to select the option **Override.**

> Currently you can only decide for all conflicts whether the Master project should "win", or the import project.

Handling of Deleted Entities

> It is not possible to "subtract" entities.

If one team member has deleted a code or some codings, and these entities still exist in another project, the merged project will contain those codes or codings again.



If you want to clean up a project, this is best done in a fresh Master-project after merging and before distributing the new Master-file to all team members.

How to Merge

The Merge Tool reunites projects that were originally divided for analytical or economic reasons. It brings together the contributions of different members of a research team.

Before you merge, the recommendation is that you import all project bundle files first and take a look at the projects. If a conflict arises during the process of merging, you need to decide whether to keep the version in the Master or the Import project. If you do not know what is contained in import project, you cannot make an informed decision. Principally, it is possible to merge project bundle files without importing them prior to merging.

In ATLAS.ti Mac, you always merge a project bundle file.
To begin the merge process:

> Open the Master project.

> Select **Project > Merge with Project**. Select a project bundle file and click **Open**. The merge process starts.
> ATLAS.ti checks the two projects for identical and different items. After this process is completed, you see a summary.
> If there are conflicts between the Master project, and the project that you import, you can solve the conflict in two ways:

- **Keep current version**: the Master project 'wins', and the changes made in the Import project are ignored.
- **Overwrite**: the version in the Master project will be overwritten, and the changes made in the Import project 'win'. If all team members have been coding different documents, merge conflicts are unlikely to occur.

A conflict could arise, for instance, if someone has modified a document or code group, or modified a comment. As project administrator, you will have to decide whether to accept these changes or not.

You currently *cannot* chose for each conflict how to solve it. All conflicts need to be solved by either selecting the strategy 'keep current version', or the strategy 'Overwrite'.
inst
After merging, check the final merge report, and the merged project for plausibility. If you are satisfied with the results, save the project. If not, you can always select **Undo**.
If applicable, continue with merging the next subproject or project bundle file.

A common mistake is that team members set up their own projects, adding documents and codes. This will result in duplicated documents and codes after merging. Issues around duplicated codes you can solve yourself by merging those codes (see below **Housekeeping**). You can however not merge duplicated documents. Please follow the recommended workflow described under Team Work.

Housekeeping

After merging all projects, the project administrator may need to perform some housekeeping work, such as:

- cleaning up the code list
- adding or modifying code groups
- adding a memo with information for the team
- adding new documents and document groups

Merging Duplicate Codes

You need to do some housekeeping if you find duplicate codes in the merged project. This can happen, for instance, if team members independently have added codes that have the same name. As these codes have been created in different projects, they have different IDs, and therefore they are added, not merged. The naming convention for duplicate codes is as follows:

- code A
- code A (2)

Duplicate codes can be merged as follows:

> Open the Code Manager. Highlight the code(s) that you want to merge and drag them to the code you want to keep. Select **Merge code ... into ...** from the menu that pops up.

Inter-coder Agreement (ICA)

You can test inter-coder agreement in text, audio and video documents. Image documents are not supported. This also applies to image quotations in text PDF documents.

As you need to start from a common Master project when setting up a project for ICA analysis, you cannot check for inter-coder agreement if one of the coders is using the Web version. All coders need to use the desktop version (Mac or Windows). For a more detailed explanation, see Merging Projects.

Why It Matters

The purpose of collecting and analyzing data is that researchers find answers to the research questions that motivated the study in the first place. Thus, the data are the trusted ground for any reasoning and discussion of the results. Therefore, the researchers should be confident that their data has been generated taking precaution against distortions and biases, intentional or accidental, and that the mean the same thing to anyone who uses them. Reliability grounds this confidence empirically (Krippendorff, 2004).

Richards (2009) wrote: *"But being reliable (to use the adjective) beats being unreliable. If a category is used in different ways, you will be unable to rely on it to bring you all the relevant data. Hence, you may wish to ensure that you yourself are reliably interpreting a code the same way across time, or that you can rely on your colleagues to use it in the same way"* (p. 108).

There are two ways to rationalize reliability, one routed in measurement theory, which is less relevant for the type of data that ATLAS.ti users have. The second one is an interpretivist conception of reliability. When collecting any type of interview data or observations, the phenomena of interest usually disappears right after it has been recorded or observed. Therefore, the analyst's ability to examine the phenomena relies heavily on a consensual reading and use of the data that represent the phenomena of interest. Researchers need to presume that their data can be trusted to mean the same to all of their users.

This means *"that the reading of textual data as well as of the research results is replicable elsewhere, that researchers demonstrably agree on what they are talking about. Here, then, reliability is the degree in which members of a designated community agree on the readings, interpretations, responses to, or uses of given texts or data. [...] Researchers need to demonstrate the trustworthiness of their data by measuring their reliability"* (Krippendorff, 2004, p. 212).

Testing the reliability of the data is a first step. Only after establishing that the reliability is sufficiently high, it makes sense to proceed with the analysis of the data. If there is considerable doubt what the data mean, it will be difficult to justify the further analysis and the results of this analysis.

ATLAS.ti's inter-coder agreement tool lets you assess the agreement of how multiple coders code a given body of data. In developing the tool we worked closely together with Prof. Klaus Krippendorff, one of the leading experts in this field, author of the book Content Analysis: An Introduction of Its Methodology, and the originator of the Krippendorff's alpha coefficient for measuring inter-coder agreement.

The need for such a tool as an integrated element in ATLAS.ti has long been evident and has been frequently requested by users. By its nature, however, it could not and cannot be a magic "just click a button and hope for the best" solution kind of tool. If you randomly click on any of the choices that ATLAS.ti offers to calculate an inter-coder agreement coefficient, ATLAS.ti will calculate *something*. Whether the number you receive will be meaningful and useful depends on how you have set up your project and the coding.

This means if you want to test for inter-coder agreement, it requires at least a minimal willingness to delve into the basic theoretical foundations of what inter-coder agreement is, what it does and can do, and what it cannot do. In this manual, we provide some basics, but this cannot be a replacement for reading the literature and coming to understand the underlying assumptions and requirements for running an inter-coder agreement analysis.

Please keep in mind that the inter-coder agreement tool crosses the qualitative-quantitative divide. Establishing inter-coder agreement has its origin in quantitative content analysis (see for instance Krippendorff, 2018; Schreier, 2012). If you want to apply it and want to adhere to scientific standards, you must follow some rules that are much stricter than those for qualitative coding.

If you want to develop a code system as a team, yes, you can start coding independently and then see what you get. But this approach can only be an initial brainstorming at best. It cannot be used for testing inter-coder agreement.

A good time for checking inter-coder agreement is when the principal investigator has built a stable code system and all codes are defined. Then two or more additional coders that are independent of the person who developed the code system code a sub-set of the data. This means, this is somewhere in the middle of the coding process. Once a satisfactory ICA coefficient is achieved, the principal investigator has the assurance that his or her codes can be understood and applied by others and can continue to work with the code system.

Literature

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ICA - Requirements For Coding

If you are not yet familiar with the coding process in ATLAS.ti, please see Coding Data

Sources for unreliable data are intra-coder inconsistencies and inter-coder disagreements.

To detect these, the coding process needs to be replicated. Replicability can be assured when **several independently working coders** (at least two) agree:

- on the use of the written coding instruction
- by highlighting the same textual segments to which the coding instructions apply
- by coding them using the same codes, or by identifying the same **semantic domains** that describe them and code them using the same codes for each semantic domain.

Semantic Domains

A semantic domain is defined as a set of distinct concepts that share common meanings. You can also think about them as a category with sub codes.

Examples of semantic domains are:

EMOTIONS

- emotions: joy
- emotions: excitement
- emotions: surprise
- emotions: sadness
- emotions: anger
- emotions: fear

STRATEGIES

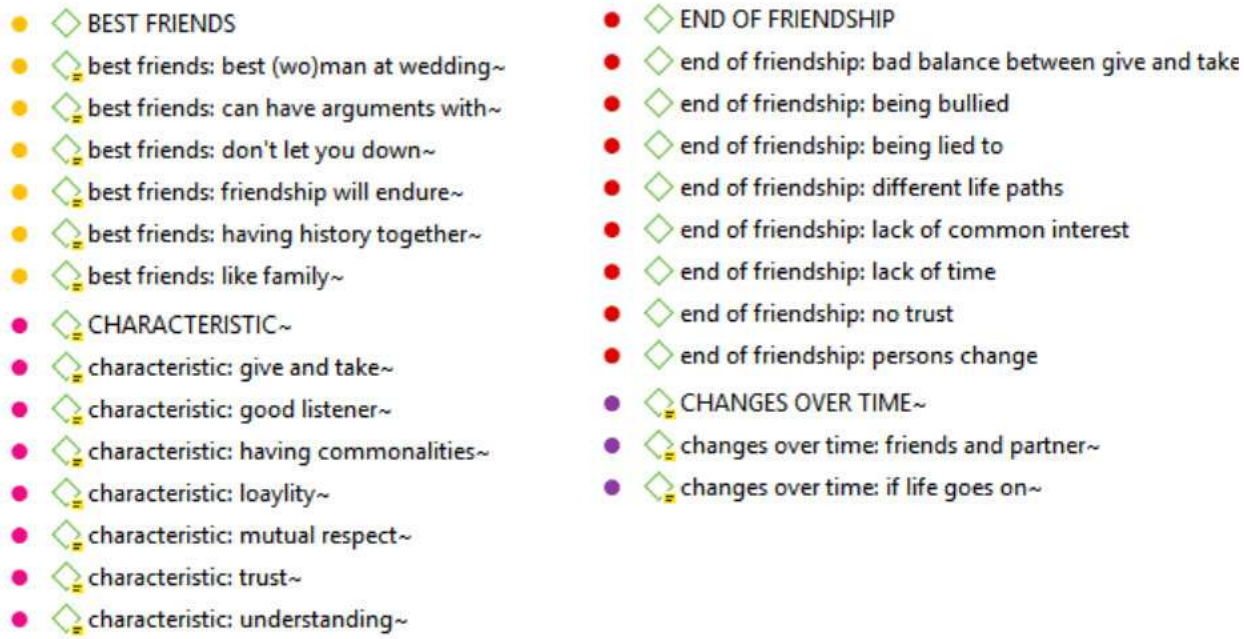
- strategies: realize they are natural
- strategies: have a Plan B
- strategies: adjust expectations
- strategies: laugh it off
- strategies: get help

ACTOR

- actor: partner
- actor: mother
- actor: father
- actor: child
- actor: sibling
- actor: neighbour

- actor: colleague

Each semantic domain embraces **mutually exclusive concepts** indicated by a **code**. If you code a data segment with 'emotions: surprise', you cannot code it also 'emotions: fear'. If both are mentioned close to each other, you need to create two quotations and code them separately. You can however apply codes from different semantic domains to one quotation. See **multivalued coding** below.



Semantic domains are context dependent

At times, it might be obvious from the domain name what the context is. The above sub code 'supporting each other' belongs to the context 'benefits of friendship', and it is not about work colleagues supporting each other. If the context is still unclear and could be interpreted in different ways, you need to make it unambiguous in the code definition.

Semantic domains need to be conceptually independent

Conceptual independence means:

- a sub code from one domain is only specific for this domain. It does not occur in any other domain.
- thus, each code only occurs once in the code system

This is also a rule that you should generally apply when building a code system. See Developing a Code System.

Therefore, as semantic domains are logically or conceptually independent of each other, it is possible to apply codes from different semantic domains to the same or overlapping quotations. For instance, In a section of your data, you may find something on the benefits of friendship, and

some emotional aspects that are mentioned. As these codes come from different semantic domains (BENEFITS and EMOTIONS), they can both be applied.

Semantic Domains

Semantic domains can be developed deductively or inductively. In most studies applying a qualitative data analysis approach, development is likely to be inductive. This means, you develop the codes while you read the data step by step. For example, in an interview study about friendship, you may have coded some data segments 'caring for each other', 'supporting each other' and 'improve health and longevity'. Then you realize that these codes can be summarized on a higher level as 'BENEFITS OF FRIENDSHIP'. Thus, you set up a semantic domain BENEFITS with the sub codes:

- benefits: caring for each other
- benefits: supporting each other
- benefits: improve health and longevity

You continue coding and come across other segments that you code 'learning from each other'. As this also fits the domain BENEFITS, you add it to the domain by naming it:

- benefits: learning from each other

And so on. This way you can build semantic domains step by step inductively while developing the code system.

Once the code system is ready, and the code definitions are written in the code comment fields, you can prepare the project for inter-coder agreement testing. At this stage, you can no longer expand a semantic domain. See Project Setup.

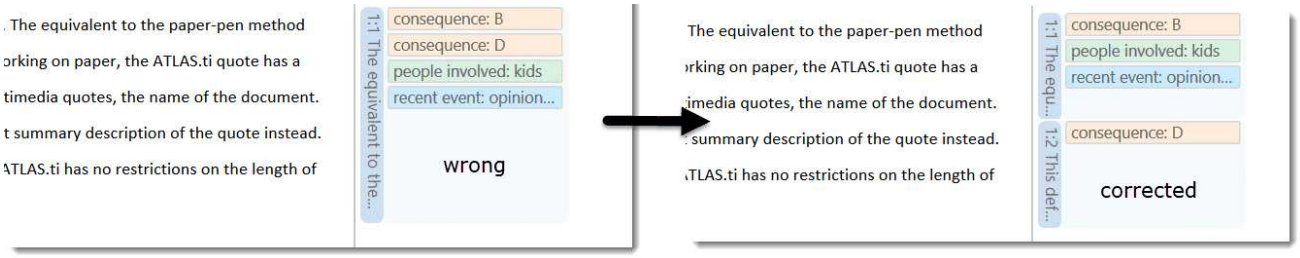
When developing a code system, the aim is to cover the variability in the data so that no aspect that is relevant for the research question is left-out. This is referred to as **exhaustiveness**. On the domain level this means that all main topics are covered. On the sub code level, this means that the codes of a semantic domain cover all aspects of the domain, and the data can be sorted in the available codes without forcing them. An easy way out is to include a catch-all 'miscellaneous' code for each domain into which coders can add all data that they think does not fit anywhere else. However, keep in mind that such catch-all codes will contribute little to answering the research questions.

Rules for Applying Codes

- codes from one domain need to be applied in a mutually exclusive manner.
- codes from multiple semantic domains can be applied to the same or overlapping data segments.

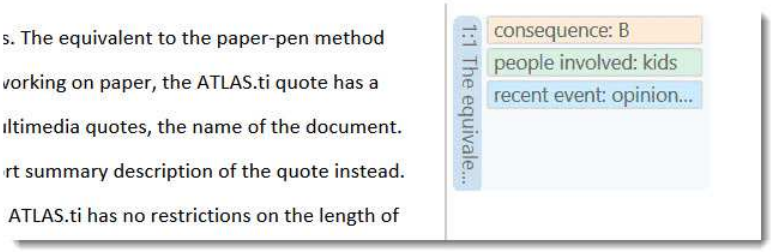
Mutual exclusiveness: You can only apply one of the sub codes of a semantic domain to a quotation or to overlapping quotations. Using the same code colour for all codes of a semantic domain will help you to detect possible errors.

If you find that you have coded a quotation with two codes from the same semantic domain, you can fix it by splitting the quotation. This means, you change the length of the original quotation and create one new quotation, so you can apply the two codes to two distinct quotations.



If codes within a semantic domain are not applied in a mutually exclusive manner, the ICA coefficient is inflated - and in the current implementation of the tool cannot be calculated!

Multi-Valued Coding: This means that you can apply multiple codes of different semantic domains to the same quotation. For instance, a respondent talks about anger in dealing with her mother and mentions that she had to adjust expectations, this can be coded with codes from the three semantic domains EMOTIONS; ACTOR and STRATEGIES. Or as shown in the example below: CONSEQUENCE, PEOPLE INVOLVED, and RECENT EVENT.



Coding with codes from multiple semantic domains will allow you to see how the various semantic domains are related for other analyses than inter-coder agreement. For example, what kind of emotions are mentioned in relation to which actor and which strategies are used to deal with them. For this you can use the code co-occurrence tools. See Code Co-Occurrence Tools.

Instructions for Coders

An important requirement for inter-coder agreement analysis is the independence of the coders. Thus, the person who has developed the code system cannot be one of the coders whose coding goes into the ICA analysis. In addition to the principal investigator who develops the code system, two or more persons are needed who apply the codes.

The coders will receive a project bundle file from the principal investigator (see Project Setup). It is recommended to provide the coders with the following instruction:

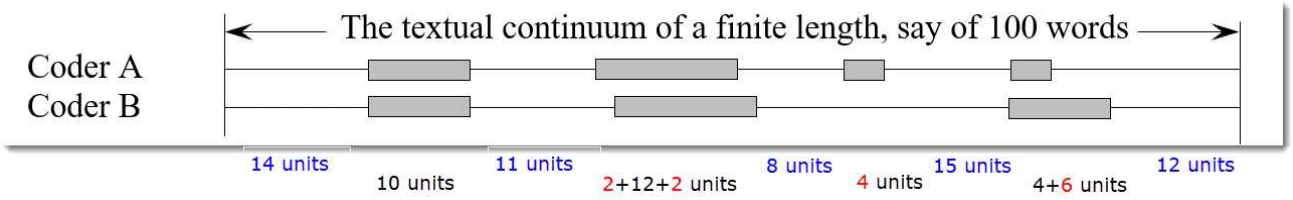
- When importing the project that you receive from the principal investigator, add your name or initials to the project name.
- After opening the project, double-check your username.
- Apply all codes of a semantic domain in a mutual exclusive manner.
- If fitting you can apply codes from multiple semantic domains to the same or overlapping quotations.
- Do not make any changes to the codes - do not alter the code definition, do not change the code name, or the code color.
- If you do not understand a code definition, or find a code label not fitting, create a memo and name it 'Comments from coder name'. Write all of your comments, issues you find and ideas you have into this memo.
- Do not consult with other coders. This is important for your coding to remain unbiased. The data must be coded by all coders independently.
- Once you are done coding, create a project bundle file and send it back to the principal investigator.

How Agreement and Disagreement is Measured

The coefficients that are available measure the extent of agreement or disagreement of different coders. Based on this measure one can infer reliability, but the coefficients do not measure reliability directly. Therefore: **what is measured is inter-coder agreement** and not inter-coder reliability.

Agreement is what we measure; reliability is what we infer from it.

Suppose two coders are given a text and code it following the provided instructions. After they are done, they give you the following record of their coding:



- There is agreement on the first pair of segments in terms of length and location (agreement: 10 units).
- On the second pair they agree in length but not in location. There is agreement on an intersection of the data (agreement; 12 units, disagreement: 2 + 2 units).
- In the third pair, coder 'A' finds a segment relevant, which is not recognized by coder 'B' (disagreement: 4 units).
- The largest disagreement is observed in the last pair of segments. Coder 'A' takes a narrower view than coder 'B' (agreement: 4 units, disagreement: 6 units).

In terms of your ATLAS.ti coding, you need to think of your document as a textual continuum. Each character of your text is a unit of analysis for ICA, starting at character 1 and ending for instance at character 17500. For audio and video documents, the unit of analysis is a second. Images can currently not be used in an ICA analysis.

The quotation itself does not go into the analysis, but the characters or seconds that have been coded. In other words, if each coder creates quotations, it is not a total disagreement if they have not highlighted the exact same segment. The part of the quotations that overlap go into the analysis as agreement; the other parts as disagreement.

Another option is to work with pre-defined quotations. So that coders only need to apply the codes. For more information see Project Setup.

You can test inter-coder agreement in text, audio and video documents. Image documents are not supported. This also applies to image quotations in text PDF documents.

Example Application

Why are many business instilling a DevOps culture into their organization? written by: Jessica Diaz, Daniel López-Fernández, Jorge Perez and Ángel González-Prieto.

Methods For Testing ICA

> "An inter-coder agreement coefficient measures the extent to which data can be trusted to represent the phenomena of analytical interest that one hopes to analyze in place of the raw phenomena" (Krippendorff, 2019).

ATLAS.ti currently offers three methods to test inter-coder agreement:

- Simple percent agreement
- Holsti Index
- Krippendorff's family of alpha coefficients.

All methods can be used for two or more coders. As the percent agreement measure, and the Holsti index do not take into account chance agreement, we recommend the Krippendorff alpha coefficients for scientific reporting.

Percent Agreement

Percentage Agreement is the simplest measure of inter-coder agreement. It is calculated as the number of times a set of ratings are the same, divided by the total number of units of observation that are rated, multiplied by 100.

The benefits of percentage agreement are that it is simple to calculate, and it can be used with any type of measurement scale. Let's take a look at the following example: There are ten segments of text and two coders only needed to decide whether a code applies or does not apply:

Example Coding of Two Coders

Segments	1	2	3	4	5	6	7	8	9	10
Coder 1	1	1	0	0	0	0	0	0	0	0
Coder 2	0	1	1	0	0	1	0	1	0	0

1 = agreement, 0 = disagreement

This is how you calculate it:

$$\text{Percentage of agreement} = \frac{\text{Number of units of coding on which the coders agree}}{\text{Total number of units coded}} \times 100$$

PA = 6 / 10

PA = 0.6 = 60%

Coder 1 and 2 agree 6 out of 10 times, so percent agreement is 60%.

One could argue that this is quite good. This calculation, however, does not account for chance agreement between ratings. If the two coders were not to read the data and would just randomly code the 10 segments. we would expect them to agree a certain percentage of the time by chance alone. The question is: How much higher is the 60% agreement over the agreement that would occur by chance?

The agreement that is expected by mere chance is 56% = (9.6 +1.6)/20. If you are interested in the calculation, take a look at Krippendorff (2004, p. 224-226). The 60% agreement now does not look so impressive after all. Statistically speaking, the performance of the two coders is equivalent to having arbitrarily assigned 0s and 1s to 9 of the 10 segments, and only 1 of the 10 segments is reliably coded.

For calculating percent agreement you can add single codes in place of semantic domains.

Holsti Index

The Holsti index (Holsti, 1969) is a variation of the percent agreement measure for situations where coders do not code precisely the same data segment. This is the case if coders set their own quotations/. Like Percent Agreement, also the Holsti index does not take into account chance agreement.

The formula for the Holsti Index is:

$$\text{Holsti Index}_{\text{(for 2 coders)}} = \frac{2 \times \text{number of agreements}}{\text{number of units coded by coder 1} + \text{number of units coded by coder 2}}$$

The results for Percentage agreement and the Holsti Index are the same when all coders code the same data segments.

For calculating percent agreement you can add single codes in place of a semantic domain, or use real semantic domains.

Cohe

We acknowledge that Cohen's Kappa is a popular measure, but we opted for not implementing it because of the limitations identified in the literature.

> *"It is quite puzzling why Cohen's kappa has been so popular in spite of so much controversy with it. Researchers started to raise issues with Cohen's kappa more than three decades ago (Kraemer, 1979; Brennan & Prediger, 1981; Maclure & Willett, 1987; Zwick, 1988; Feinstein & Cicchetti, 1990; Cicchetti & Feinstein, 1990; Byrt, Bishop & Carlin, 1993). In a series of two papers, Feinstein & Cicchetti (1990) and Cicchetti & Feinstein (1990) made the following two*

paradoxes with Cohen's kappa well-known: (1) A low kappa can occur at a high agreement; and (2) Unbalanced marginal distributions produce higher values of kappa than more balanced marginal distributions. While the two paradoxes are not mentioned in older textbooks (e.g. Agresti, 2002), they are fully introduced as the limitations of kappa in a recent graduate textbook (Oleckno, 2008). On top of the two well-known paradoxes aforementioned, Zhao (2011) describes twelve additional paradoxes with kappa and suggests that Cohen's kappa is not a general measure for inter-rater reliability at all but a measure of reliability under special conditions that are rarely held. Krippendorff (2004) suggests that Cohen's Kappa is not qualified as a reliability measure in reliability analysis since its definition of chance agreement is derived from association measures because of its assumption of raters' independence. He argues that in reliability analysis raters should be interchangeable rather than independent and that the definition of chance agreement should be derived from estimated proportions as approximations of the true proportions in the population of reliability data. Krippendorff (2004) mathematically demonstrates that kappa's expected disagreement is not a function of estimated proportions from sample data but a function of two raters' individual preferences for the two categories." (Xie, 2013).

In addition, Cohen's kappa can only be used for 2 coders, and it assumes an infinite sample size. See also the article in our research blog: Why Cohen's Kappa is not a good choice.

Krippendorff's Family of Alpha Coefficients

The family of alpha coefficients offers various measurement that allow you to carry out calculations at different levels. They can be used for more than two coders, are sensitive to different sample sizes and can be used with small samples as well.

Alpha binary

At the most general level, you can measure whether different coders identify the same sections in the data to be relevant for the topics of interest represented by codes. All text units are taken into account for this analysis, coded *as well* as not coded data.

You can, but do not need to use semantic domains at this level. It is also possible to enter a single code per domain. You get a value for alpha binary for each code (or each semantic domain) in the analysis, and a global value for all codes (or all domains) in the analysis.

The global alpha binary value might be something you want to publish in a paper as an overall value for inter-coder agreement for your project.

The values for each code or semantic domain provide feedback which of the codes / domains are satisfactory in terms of inter-coder agreement, and which are understood in different ways by the different coders. These are codes / domains you need to improve and test gain, albeit with different coders.

If you work with pre-defined quotations, the binary coefficient will be 1 for a semantic domain if only codes of the same semantic domain have been applied, regardless which code within the domain has been applied.

The value for *global alpha binary* will always be 1 when working with pre-defined quotations as all coded segments are the same.

cu-alpha

The cu-alpha/Cu-alpha coefficients can only be used on combination with semantic domains. They cannot be used to test agreement/disagreement for single codes!

Another option is to test whether different coders were able to distinguish between the codes of a semantic domain. For example, if you have a semantic domain called 'type of emotions' with the sub codes:

- emotions::contentment
- emotions::excitement
- emotions::embarrassment
- emotions::relief

The coefficient gives you an indication whether the coders were able to reliably distinguish between for instance 'contentment' and 'excitement', or between 'embarrassment' and 'relief'. The cu-alpha will give you a value for the overall performance of the semantic domain. It will however not tell you which of the sub codes might be problematic. You need to look at the quotations and check where the confusion is.

The cu-alpha coefficient can only be calculated if the codes of a semantic domain have been applied in a mutually exclusive manner. This means only one of the sub codes per domain is applied to a given quotation. See also Requirements for Coding.

Cu-alpha

Cu-alpha is the global coefficient for all cu-alphas. It takes into account that you can apply codes from multiple semantic domains to the same or overlapping quotations. See multivalued coding. Thus, Cu-alpha is not just the average of all cu-alphas.

If codes of a semantic domain 'A' have been applied to data segments that are coded with codes of a semantic domain 'B', this does not affect the cu-alpha coefficient for either domain A or B, but it effects the overall Cu-alpha coefficient.

You can interpret the Cu-alpha coefficient as indicating the extent to which coders agree on the presence or absence of the semantic domains in the analysis. Formulated as a question: Could coders reliably identify that data segments belong to a specific semantic domain, or did the various coders apply codes from other semantic domains?

In the calculation for both the cu- and Cu-alpha coefficient, only coded data segments are included in the analysis.

Calculation of Krippendorff's Alpha

For a full mathematical explanation on how the alpha coefficients are calculated see ICA Appendix.

The basic formula for all Krippendorff alpha coefficients is as follows:

alpha = 1 - observed disagreement (Do)) / expected disagreement (De)

$$\alpha = 1 - \frac{D_o \quad \text{observed disagreement}}{D_e \quad \text{expected disagreement}}$$

whereby 'De' is the expected disagreement by chance.

α = 1 indicates perfect reliability. α = 0 indicates the absence of reliability. The units and the values assigned to them are statistically unrelated. α < 0 when disagreements are systematic and exceed what can be expected by chance.

When coders pay no attention to the text, which means they just apply the codes arbitrarily, their coding has no relationship to what the text is about, then the observed disagreement is 1. In other words, the observed disagreement (Do) equals the maximum expected disagreement (De), which is 1. If we enter this in the formula, we get:

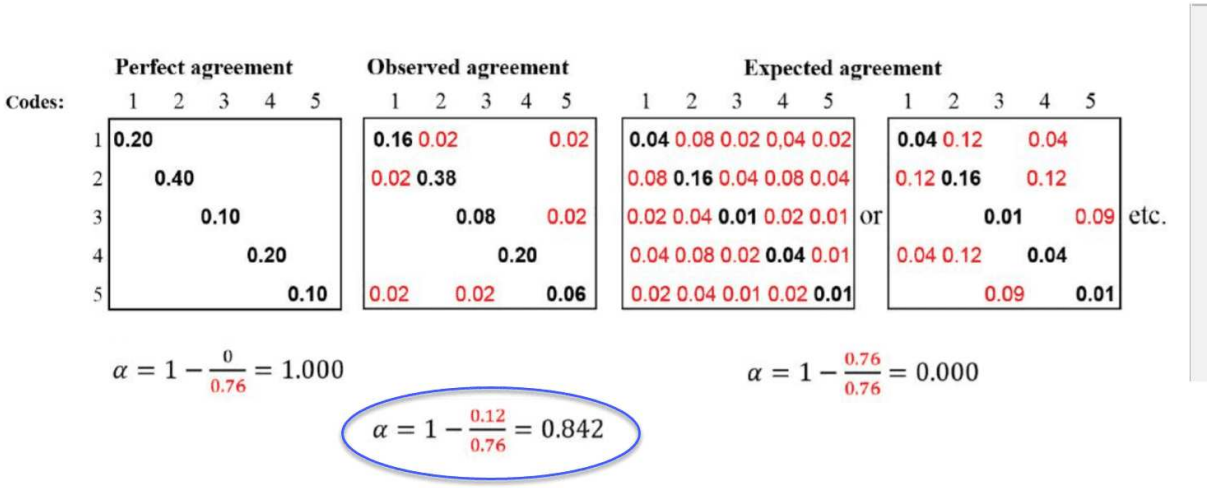
α= 1 – 1/1 = 0.000.

If on the other hand, agreement is perfect, which means observed disagreement (Do) = 0, then we get:

α= 1 – 0 / expected disagreement = 1.000.

To better understand the relationship between actual, observed and expected agreement, let's take a look at the following contingency table:

$\alpha = 1 - \frac{D_o}{D_e}$:



In the example above, the tables represent a semantic domain with five codes. The matrices with perfect and expected agreement/disagreement serve as a benchmark what could have been if agreement either was perfect or if coders had applied the codes randomly. There are two matrices for expected agreement/disagreement indicating that statistically speaking there are many possibilities for a random attribution of the codes.

The black numbers show agreement, the red numbers disagreement.

In the contingency table for observed agreement, we can see that the coders agree in applying code 4. There are no red numbers, thus no disagreement.

There is some disagreement about the application of code 2. Agreement is 38% percent. In 2 % of the cases, code 1 was applied instead of code 2.

There is a bit more confusion regarding the application of code 5. The coders have also applied code 1 and code 3.

If this were a real life example, you would take a look at the code definitions for code 5 and code 2 and ask yourself why coders had difficulties to apply these codes in a reliable manner. The coefficient, however, is acceptable. See Decision Rules. There is no need for re-testing.

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Xie, Q. (2013). Agree or disagree? A demonstration of an alternative statistic to Cohen's kappa for measuring the extent and reliability of agreement between observer. In Proceedings of the Federal Committee on Statistical Methodology Research Conference, The Council of Professional Associations on Federal Statistics, Washington, DC, USA, 2013.

Sample Size and Decision Rules

A number of decisions have to be made when testing for inter-coder agreement. For instance, how much data material needs to be used, how many instances need to be coded with any given code for the calculation to be possible, and how to evaluate the obtained coefficient.

Sample size

The data you use for the ICA analysis needs to be representative of the total amount of data you have collected, thus of those data whose reliability is in question. Furthermore, the number of codings per code needs to be sufficiently high. As a rule of thumb, the codings per code should at least yield five agreements by chance.

Krippendorff (2019) uses Bloch and Kraemer's formula 3.7 (1989:276) to obtain the required sample size. The table below lists the sample size you need when working with two coders:

Smallest acceptable α	**.667**				**.800**				**.900**			
Significance level	.100	.050	.010	.005	.100	.050	.010	.005	.100	.050	.010	.005
codes per semantic domain												
10 codes or pc = .100	104*	172	344	421	178	293	587	719	361	595	1190	1459
9 codes or pc = .111	95	156	312	383	162	267	534	654	329	542	1083	1328
8 codes or pc = .125	85	141	281	345	146	241	481	590	297	489	980	1198
7 codes or pc = .143	76	125	251	307	130	214	429	526	265	436	872	1069
6 codes or pc = .167	67	110	220	270	114	189	377	462	233	384	768	941
5 codes or pc = .200	58	95	190	233	99	163	326	400	202	332	667	815
4 codes or pc = .250	49	81	161	198	84	139	277	340	172	283	566	694
3 codes or pc = .333	41	67	135	165	71	116	233	285	144	238	477	584
2 codes or pc = .500	36	60	119	146	62	103	206	252	128	211	422	518

*number of codings for the semantic domain after merging

- the three smallest acceptable reliabilities α min: 0.667 / 0.800 / 0.900
- for four levels of statistical significance: 0.100 / 0.050 / 0.010 / 0.005
- for semantic domains up to 10 codes (=probability pc):

Example: If you have a semantic domain with 4 codes and each of the codes are equally distributed (pc = 1/4 = 0,25), and if the minimum alpha should be 0.800 at a 0.05 level of statistical significance, you need a minimum of 139 codings for this semantic domain. For a lower alpha of 0.667, you need a minimum of 81 codings at the same level of statistical significance.

$$N_c = 2 * Z_p^2 \left(\frac{(1+\alpha_{min})(3-\alpha_{min})}{4(1-\alpha_{min})P_c(1-P_c)} - \alpha_{min} \right)$$

It applies to 2 coders, and for semantic domains up to 10 sub-codes. If you have more than two

coders, more than 10 sub-codes in a domain, or an unequal distribution within a domain, you need to adjust the equation and calculate the needed sample size yourself.

- **More than two coders:** You need to and multiply Z square by the number of coders.
- **More than 10 sub-codes per domain:** You need to adjust the value for pc. The value for pc = 1/number of sub-codes.
- **Unequal distribution of codings within a domain**: By 4 codes in a semantic domain, the estimated proportion pc of all values c in the population is 0.250 (¼); by 5 codes, it is 0,200 (1/5); by 6 codes 0,167 (1/6) and so on. If the distribution of your codes in a semantic domain is unequal, you need to make a new estimate for the sample size by using a pc in the formula that is correspondingly less than 1/4, 1/5, 1/6 and so on.

You can see the corresponding z value from a standard normal distribution table. For a p-value of 0,05, z = 1,65.

Acceptable Level of Reliability

The last question to consider is when to accept or reject coded data based on the ICA coefficient. Krippendorff (2019) recommends:

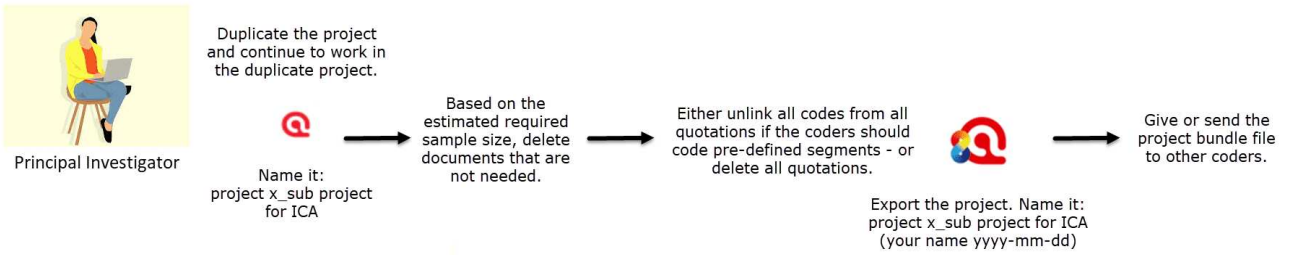
- Strive to reach α = 1,000, even if this is just an ideal.
- Do not accept data with reliability values below α = 0.667.
- In most cases, you can consider a semantic domain to be reliable if α ≥ 0.800.
- Select at least 0.05 as the statistical level of significance to minimize the risk of a Type 1 error, which is to accept data as reliable if this is not the case.

Which cut-off point you choose always depends on the validity requirements that are placed on the research results. If the result of your analysis affects or even jeopardizes someone's life, you should use more stringent criteria. A cut-off point of α = 0.800 means that 80% of the data is coded to a degree better than chance. If you are satisfied with α = 0.500, this means 50% of your data is coded to a degree better than chance. The sounds a bit like tossing a coin and playing heads or tails.

Setting Up a Project for Inter-coder Agreement Analysis

You can test inter-coder agreement in text, audio and video documents. Image documents are not supported. This also applies to image quotations in text PDF documents.

When you want to run an inter-coder agreement analysis, you are working in a team. Therefore, you need to know how to set up a team project, distribute and collect team projects for merging. Please read the chapter on Team Work for further information. Here, you find the information that is specific to inter-coder agreement analysis only.



When you prepare subprojects for the various coders, do not put them into 'Inter-coder Mode'. This first needs to be done, when you merge the subprojects of the coders.
warn
As you need to start from a common Master project, you cannot perform an ICA analysis if one of the coders is using the Web version. All coders need to use the desktop version (Mac or Windows). For further information see Merging Projects.

Instructions for the Principal Investigator (PI)

- The PI develops the code system adding clear definitions for each code. This means, the PI has likely coded the data as well. See also Requirements for Coding. This is the **Master Project**.
- Based on the master project, the PI creates a subproject for the ICA analysis. This is easiest be done by duplicating a project. Usually, the coders for the ICA analysis code 10-20% of the material. Another approach is the number of codings you need to achieve a certain level of significance. See Sample Size and Decision Rules.
- The PI deletes all documents from the snapshot project that coders should not code. See Document Management.

Next, the PI can either remove all quotations, so that the snapshot project for the coders only contain the documents that need to be coded, and the codes with the definitions (**option A**). The coders then need to find and mark text segments they find relevant and apply one or more codes

from the list. This option is best used for longer documents where you are interested in seeing whether other coders find the same passages relevant for a given topic. For example, you have a number of reports, and the aim is to identify all segments related to business strategies, labour laws and gender issues. If this is the question of interest, it is necessary that all coders set quotations themselves (Option A: Delete all Quotations). Another option is to leave the quotations in the project, but to remove all codings. This means, the coders get a project that contains the documents to be coded, pre-defined quotations and a list of codes (**option B**). This is useful if the aim is to see whether different coders understand the codes in the same way and apply them to the same data segments. It assures that the code system is replicable and that also others see the same or similar things in the data as the principal investigator (Option B: Remove all codings).

Option A: Delete all Quotations

- **Option A:** The PI deletes all quotations: Open the Quotation Manager, select all quotations, right-click and select **Delete.**

Option B: Remove all Codings

- **Option B:** The PI removes only the codings: From the main menu, select **Quotations > Unlink All Codes from All Quotations**.

Instructions for Coders

An important requirement for inter-coder agreement analysis is the independence of the coders. Thus, the person who has developed the code system cannot be one of the coders whose coding goes into the ICA analysis.

It is recommended to provide the coders with the following instructions.

- As coder, you receive a project bundle file from the principal investigator.
- After importing the project, rename it and add your name or initials to the project name.
- After opening the project, double-check your username.
- Open the Code Manager and familiarize yourself with the code system. Read all code definitions.
- Depending on the aim of the analysis and how the project was set up, you either need to set your own quotations and apply the codes; or you need to apply codes to pre-defined quotations.
- When applying codes, never apply more than one code from a specific semantic domain to a single or overlapping quotations. This is referred to as **mutual exclusive coding**.

- If fitting you can apply codes from multiple semantic domains to the same or overlapping quotations (**multivalued coding**).
- Do not make any changes to the codes - do not alter the code definition, do not change the code name, or the code color.
- If you do not understand a code definition, or find a code label not fitting, create a memo and name it 'Comments from coder (your name)'. Write all of your comments, issues you find and ideas you have into this memo.
- Do not consult with other coders. This is important for your coding to remain unbiased. The data must be coded by all coders independently.
- Once you are done coding, create a project bundle file and send it back to the principal investigator.

Continues Workflow

- Once the coders are done with they work, they prepare a project bundle file and send it back to the PI.
- The PI imports the project bundle files from each coder, checks the work of each coder and reads the memo they have written (if any).
- Next the projects need to be merged. See Merging projects for ICA analysis.
- Then the PI can run the ICA analysis.

Merging Projects For ICA Analysis

The following instructions assume 2 independent coders. If you work with more coders, you have to repeat the merge process. You can only merge two projects at a time.

We recommend that you import the project bundle files of coder 1 and 2 before merging them for inspection. Did the coders do what they were supposed to do? Did they send you the correct project?

> Create a copy of coder 1's project. Name the copy something like 'Project for ICA XY coder 1 and 2'. Merge the project of coder 2 into this version of the project.

Before the project merge, set the project into inter-coder mode:

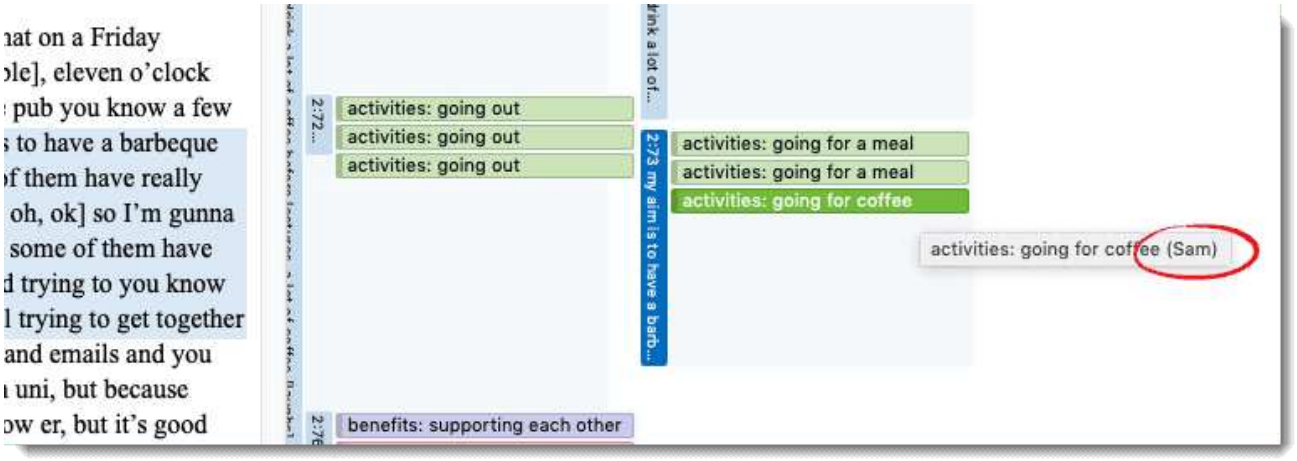
> From the main menu, select **Analysis** > **Intercoder Agreement Mode**.

> Next, select **Project** > **Merge with Project** from the main menu, and select the project of coder 2 to be merged. This is the import project. Follow the instructions on the screen. There should be no merge conflicts. For more detail see Project Merge.

When you set up the project correctly and all coders did what they were supposed to do, there should be no merge conflict. If there is a merge conflict, having inspected the projects beforehand will give you an idea what went wrong and what to do.

After merging in ICA mode, The **codings** of all coders will become visible.

> Open one document and take a look at the margin area. If you see the same codes applied to the same quotations, this is good. It means the two coders agree. If you hover over the code, you see the name of the coder who applied the code.



The ability to see who has coded what in the margin area is useful for some purposes, e.g., if you want to discuss data segments where coders did not agree. However, there is no need to manually check all codings in the margin. For this you can run the inter-coder agreement analysis. See Running an Inter-coder Agreement Analysis.

A coding is the link between a code and a quotation. In ICA mode, you can see which coder has applied which code to a quotation.

Running an ICA Analysis

A good time to have your coding checked by other coders is when you have built a stable code system and all codes are defined. This means, this is somewhere in the middle of the coding process. Once a satisfactory ICA coefficient is achieved, the principal investigator has the assurance that his or her codes can be understood and applied by others and can continue to work with the code system.

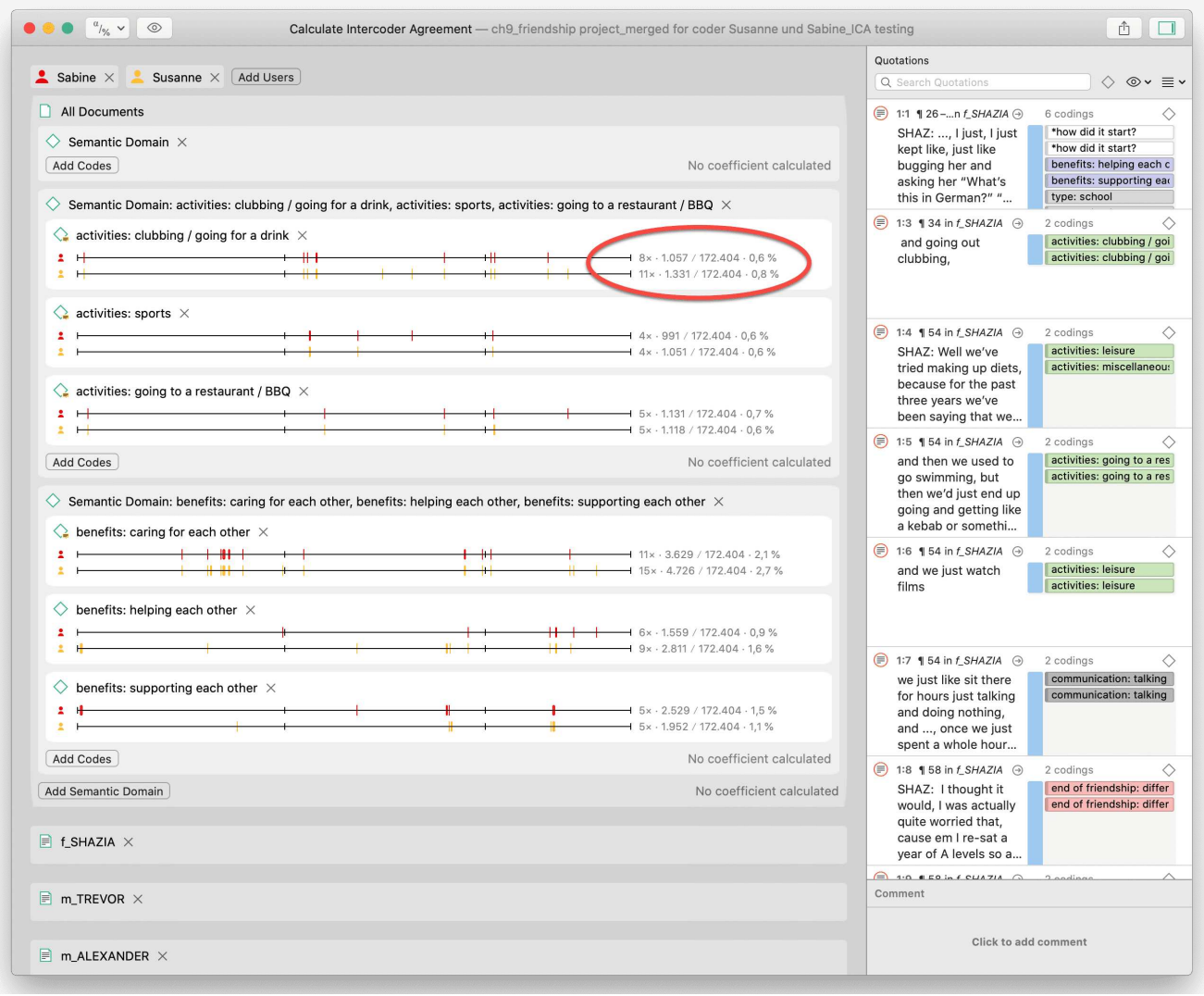
From the main menu, select **Analysis** > **Calculate Intercoder Agreement**.
inst
Click on the **Add User** button and select two or more coders.
inst
Click on the **Add Documents** button and select the documents that should be included in the analysis. Only those documents are listed that have been coded by all selected coders.

Click on the **Add Semantic Domain** button and add one or more codes to the domain. Alternatively, you can drag and drop codes from the Project Explorer or the code list into the semantic domain field. This works best, if you place the ICA window next to the main window.
inst
Repeat this process for each semantic domain.

If you are not sure, what a **semantic domain** is, you find more information here.

Whether you add semantic domains or only a single code in place of a domain, this has an effect on the type of analysis you can run. If you only add one code per semantic domain, you cannot calculate Cu/cu-alpha coefficients. See Methods for Testing ICA.

After you have added coders, documents and codes, your screen looks similar to what is shown in:

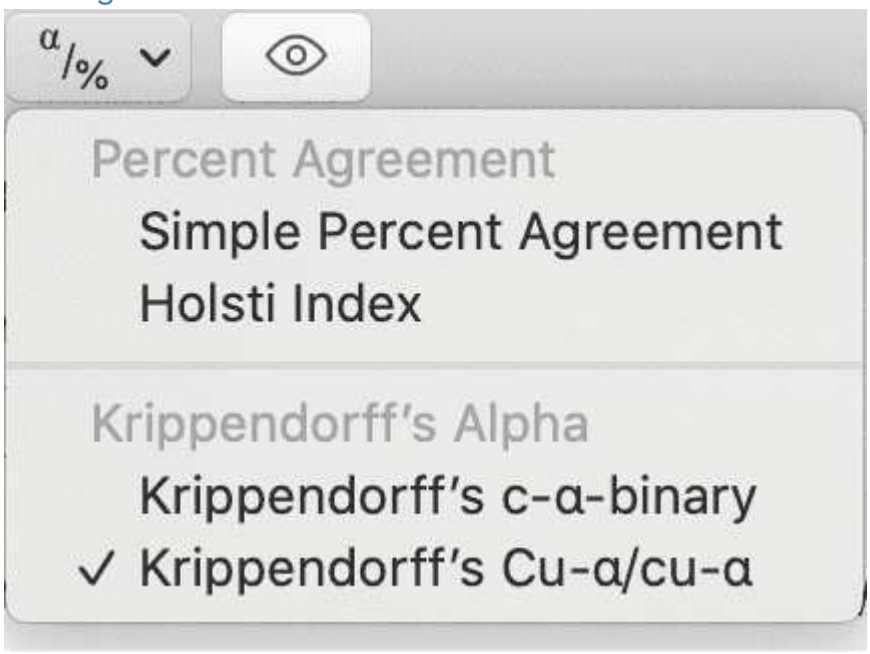


- The documents are represented by a line for each coder and code. If you have added multiple documents into the analysis, you see a black vertical line that marks the beginning of the next document.
- The quotations for the code are marked on the line in the same color as the coder icon.
- To the right of each coder line you see some descriptive statistics: The coder Susanne (yellow) has applied the code "activities clubbing / going for a drink" 11 times. The number of characters that are coded with this code are 1331 out of a total of 172.404 characters in all three selected documents, which is 0,8%. The coder Sabine (red) has applied the code "activities clubbing / going for a drink" 8 times. The number of characters that are coded with this code are 1057 out of a total of 172.404 characters in all three selected documents, which is 0,6%. On the right-hand side you see the Quotation Reader, which displays all quotations of all selected document and codes.
- If you click on the area with the two lines for the two coders for one code, only the quotations of the selected code are shown.
- If you select a semantic domain, only the quotations of the domain are shown in the Quotation Reader.

You can remove coders, codes or documents from the analysis by clicking on the x.

Calculating an ICA Co

To calculate ICA, click on the button for Agreement Measures in the toolbar (next to the View button) and select one of the four methods. See Methods For Testing ICA for more detail.



Selecting the Krippendorff's Cu /cu-alpha coefficient for the above example, yields the following results:

Semantic Domain: activities: clubbing / going for a drink, activities: sports, activities: going to a restaurant / BBQ
activities: clubbing / going for a drink
8× · 1.057 / 172.404 · 0,6 %
11× · 1.331 / 172.404 · 0,8 %
activities: sports
4× · 991 / 172.404 · 0,6 %
4× · 1.051 / 172.404 · 0,6 %
activities: going to a restaurant / BBQ
5× · 1.131 / 172.404 · 0,7 %
5× · 1.118 / 172.404 · 0,6 %
Add Codes
Krippendorff's cu-α: 0.969
Semantic Domain: benefits: caring for each other, benefits: helping each other, benefits: supporting each other
benefits: caring for each other
11× · 3.629 / 172.404 · 2,1 %
15× · 4.726 / 172.404 · 2,7 %
benefits: helping each other
6× · 1.559 / 172.404 · 0,9 %
9× · 2.811 / 172.404 · 1,6 %
benefits: supporting each other
5× · 2.529 / 172.404 · 1,5 %
5× · 1.952 / 172.404 · 1,1 %
Add Codes
Krippendorff's cu-α: 0.577
Add Semantic Domain
Krippendorff's Cu-α: 0.752

Tools

The following tools are available:

- The Redundant Codings Analyzer
- Project Search

The **redundant codings' analyzer** finds overlapping quotations that have been coded with the same code. You may have coded a long segment, e.g. from paragraph 5 to 15 and then a shorter segment within this section from paragraph 7 to 8, not realizing you have attached the same code already to the surrounding segment. This leads to confusing or even false results if you are counting segments. The *redundant codings' analyzer* finds these segments, and you can correct it.

The **project search** tool allows you to search through all entities in your project. You can specify whether you want to search for a word or expression in all entities, or only in documents, only in codes, on in memos, only in the names, only in the comments, etc. Search terms can include regular expressions.

Project Search

Use the **Project Search tool** to search for text and patterns in all elements of your project, not only in the documents that you added. The search can be restricted to certain fields, like name, author, date, comments, and content. Search terms can contain regular expressions (GREP). See Regular Expressions (GREP).

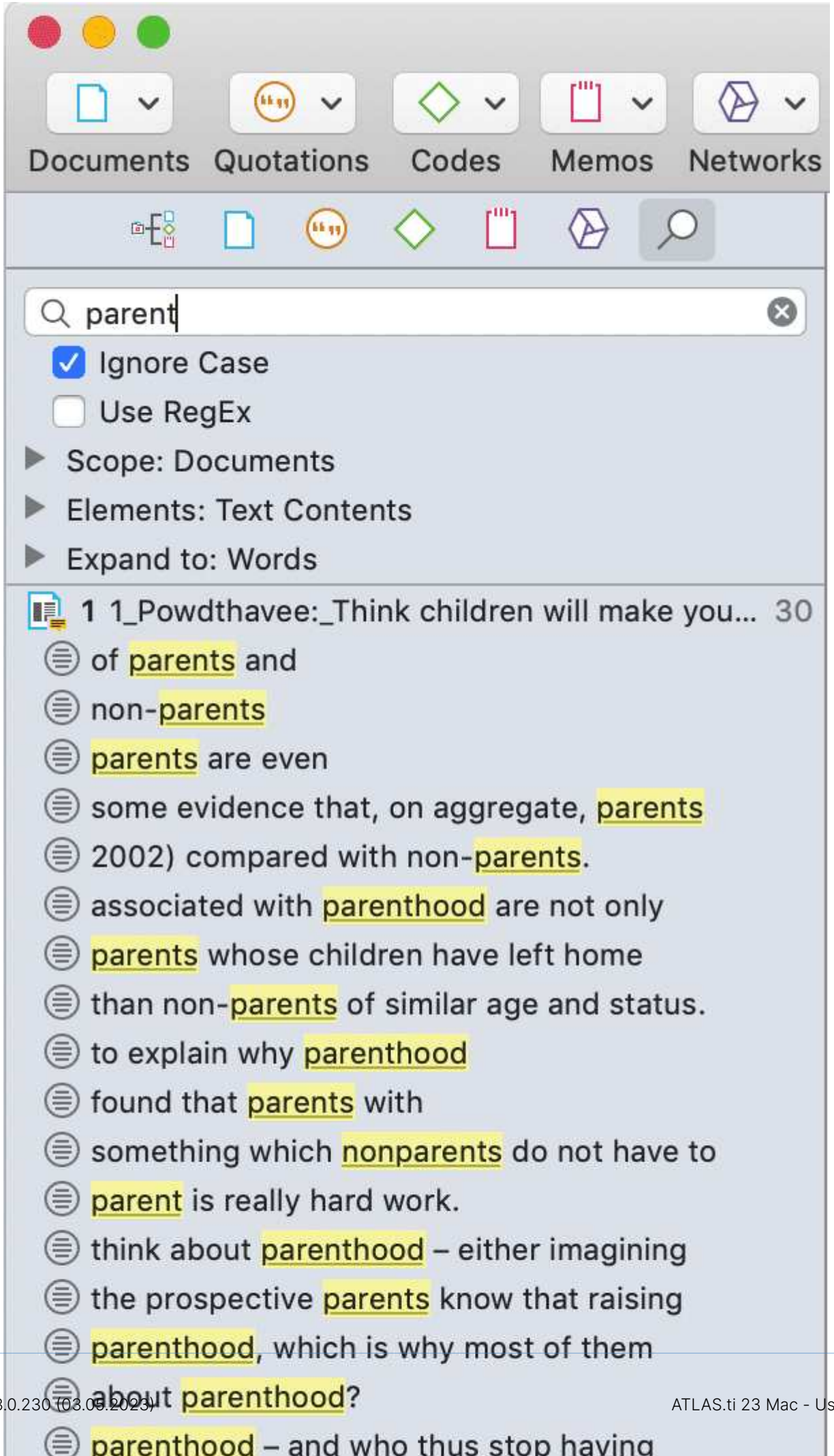
> You can open the tool in the Project Explorer on the left-hand side. Click on the magnifying glass.

> Enter a search term. If you use regular expressions, activate the *Use RegEx* option. You can also select whether a search term should be *case-sensitive* or not.

> Select the entities you want to search in, and select whether you just want to search in the entity name, comment, or the full text content.

> Select whether the search results should be expanded to words, sentences, paragraph, chapters (= at least one empty line between paragraphs), or the entire document.

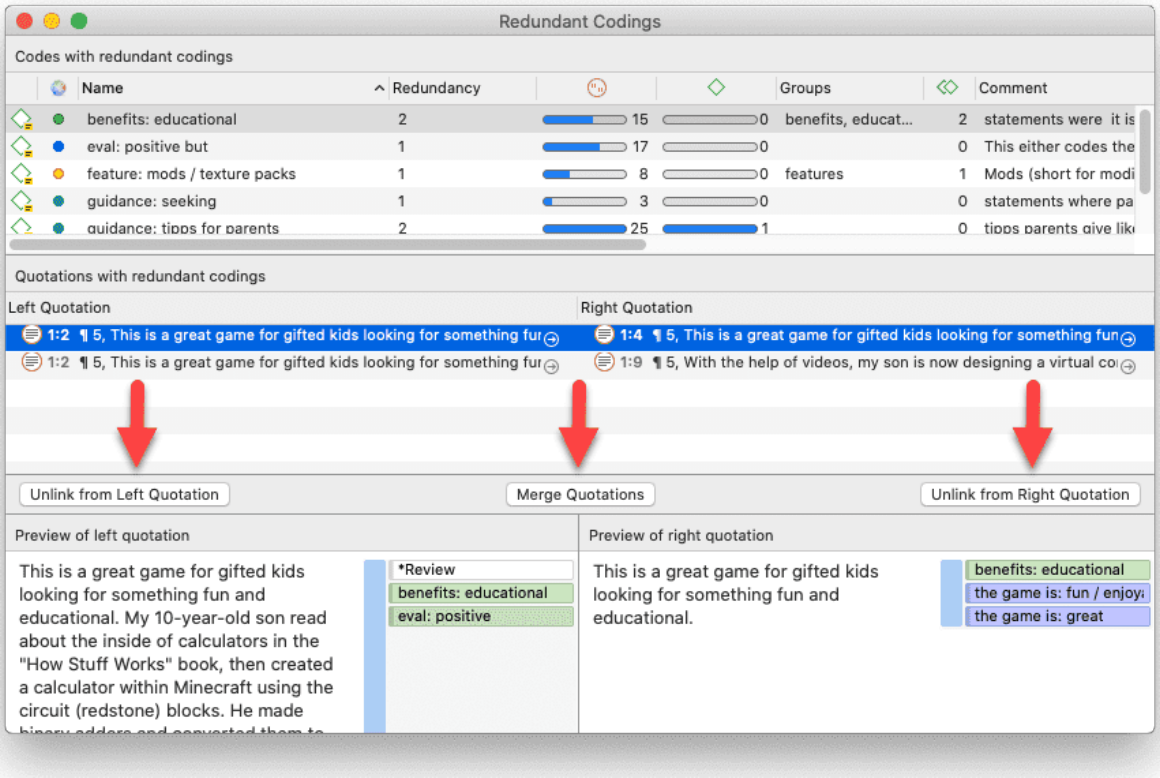
The results of the search are immediately visible. When you double-click on a result, it will be displayed in your project.


Documents
Quotations
Codes
Memos
Networks
parent
Ignore Case
Use RegEx
Scope: Documents
Elements: Text Contents
Expand to: Words
1 1_Powdthavee:_Think children will make you... 30
of parents and
non-parents
parents are even
some evidence that, on aggregate, parents
2002) compared with non-parents.
associated with parenthood are not only
parents whose children have left home
than non-parents of similar age and status.
to explain why parenthood
found that parents with
something which nonparents do not have to
parent is really hard work.
think about parenthood – either imagining
the prospective parents know that raising
parenthood, which is why most of them
about parenthood?
parenthood – and who thus stop having

Finding Redundant Codings

Redundant codings are overlapping or embedded quotations that are associated with the same code. Such codings can result from normal coding but may occur unnoticed during a merge procedure when working in teams. The Codings Analyzer finds all redundant codings and offers appropriate procedures to correct it. An example of a redundant coding is shown below.

> To find all redundant codings, select Quotation > Find Redundant Codings from the main menu.



The upper pane lists all codes for which redundant codings were found. The *Redundancy* column displays the number of pairs of redundant quotations found for the codes. If you select one of the codes, the redundant quotations are listed in pairs, in the middle pane. If you select a pair, you see a preview of the quotation in the bottom pane. Double-clicking on a listed quotation displays it in context.

You can correct the redundancy in the following ways:

Unlink from Left Quotation removes he selected code from the quotation shown on the left-hand side.

Merge Quotations melts the two quotations shown on the right- and left-hand side. All references to and from the merged quotation are "inherited" by the other. If the two quotations overlap, the resulting quotation includes all data from both quotations.

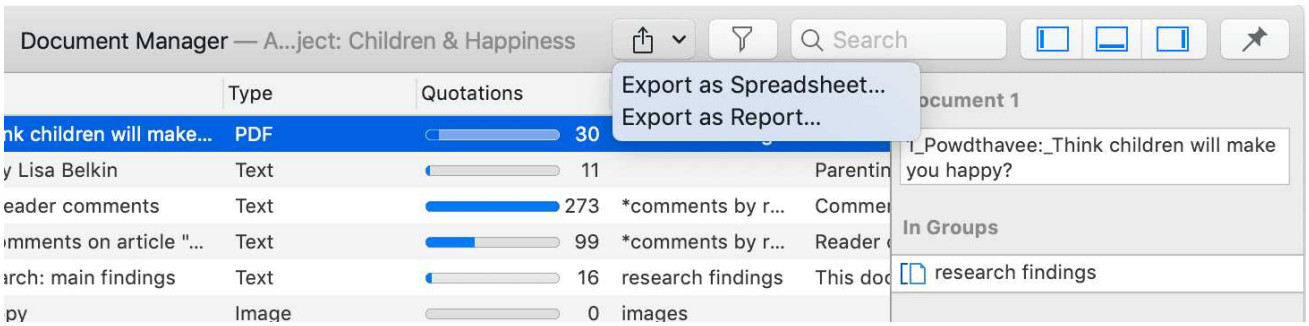
Unlink from Right Quotation removes the selected code from the quotation shown on the right-hand side.

If you see a quotation listed more than once, it means that three or more quotations are involved in a redundant coding. You will notice that merging one pair of quotations may have the effect that other pairs are removed from the list as well, as the redundancy assertion does not hold any longer for the remaining pairs of quotations for this code.

Creating Reports

Export as Spreadsheet

In every manager, you find a button (the rectangular icon with an up arrow) to export the content as spreadsheet. The export is a WYSIWYG (what you see is what you get) type of report. All columns currently displayed are exported.



From Managers

> To exclude a column from the report, click on the column header and deselect it.

> To create a report, open the drop-down menu of the report button in the toolbar and select **Export as Spreadsheet**.

Use the grouping options to create different sheets for each of the selected entity, e.g. if you group a quotation report by codes, ATLAS.ti creates a separate sheet for each code and its quotation in the spreadsheet or Excel file.

From the Query Tool

> To create a report, open the drop-down menu of the report button in the toolbar and select **Export as Spreadsheet**.

From the Quotation Reader

> To export the quotations listed in a Quotation Reader as spreadsheet, open the drop-down of the **options button** in the toolbar and select **Export as**

> **Spreadsheet.** The content of the report is the same as from the Quotation Manager. It contains all columns from the Quotation Manager.

Info Sheet for Spreadsheet / Excel Reports

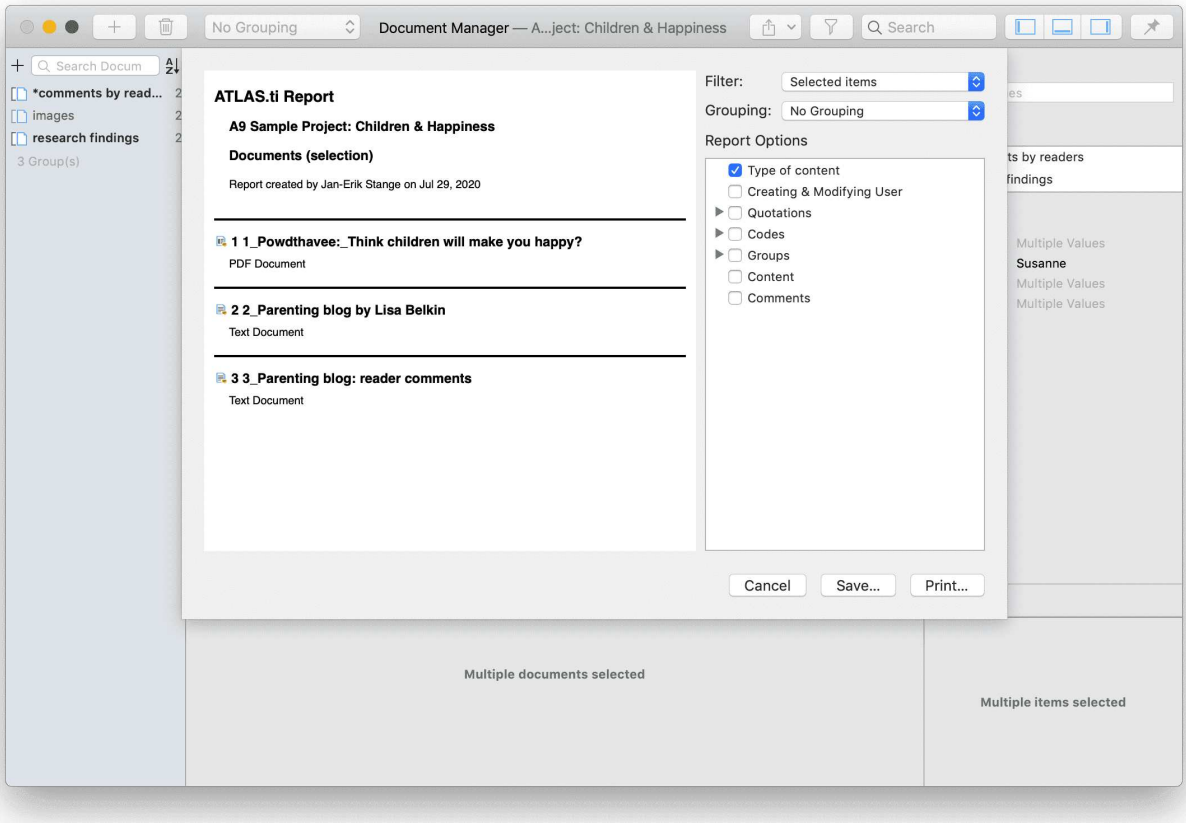
All spreadsheet / Excel reports have an additional sheet that shows meta information like the type of the report, the project name, date of export and name of exporting user.

The info sheets for reports based on the Code Document- and the Code Co-occurrence Table, and Inter-coder Agreement Analysis contain further information.

- abbreviations that are used
- Code Document Table: Information about which relative frequency count is used
- Code Co-occurrence Table: whether the c-coefficient was selected
- ICA reports: coder names

Export as Report

When using this option, you get a report in text or PDF format. It is available form all managers and the query tool. The report is configurable, this means you can select what it should contain. Before you create the report, you see a preview.



> Open a Manager. Click on the drop-down menu of the report button in the toolbar and select **Export as Report.**

On the left-hand side you see how the report looks like given the current selections. On the right-hand side, you can select further options:

- **Filter:** If you selected items before clicking on the report button, you can switch between creating a report for only the selected or all items.
- **Grouping:** Depending on the entity type you have different grouping options, e.g. by code, code group or document. Select a grouping option if appropriate.

If you select to group quotations by code, and a quotation is coded by multiple codes groups, the quotations for this code will occur multiple times in the report.
If you select to group by code groups, and a code is a member of multiple code groups, the quotations for this code will occur multiple times in the report.

- **Report options:** In this field, you can select which content should be displayed in the report. As soon as you select an option, you see in the preview how it will look like in the report. See below for further detail.
- **Save:** This saves the report as Word document. Select a name for the report and a location.
- **Print:** You can send the report directly to a printer and print it, or you can save it as PDF file. Other options are:
    - Save as PostScript
    - Send in Mail
    - Send via Messages
    - Save to iCloud Drive
    - Save to Web Receipts

Options in the Document Manager

- **Type of Content:** text, image, geo, audio or video
- Add the **Creating & Modifying User** to the report.
- **Quotations:** Adds the quotations that are in the document (ID, reference, quotation name, and document name). If selected, you can add further information about the quotations(s) from the subtree, e.g. their content and the codes that are applied.
- **Codes:** Adds the codes that are applied to the quotations in the document. If selected, you can add further information about the code(s) from the subtree.
- **Groups:** Adds the document groups that a document is a member of. If selected, you can add further information about the groups from the subtree.
- **Content:** Adds the content of the document.

- **Comments:** Adds the comment you have written for a document to the report.

Options in the Quotation Manager

- **Type of Content:** text, image, geo, audio or video
- Add the **Creating & Modifying User** to the report.
- **in Document:** Adds the document name to the report. If selected, you can add further information about the document from the subtree.
- **Coding:** Adds the codes that are applied to the quotation to the report. If selected, you can add further information about the code(s) from the subtree.
- **Hyperlinks:** Adds quotations that are linked to a quotation to the report. If selected, you can add further information about the linked quotations from the subtree, like their content.
- **Linked Memos:** Adds the memo(s) that are linked to the quotation to the report. If selected, you can add further information about the memo from the subtree, like the memo content.
- **Content:** Is selected by default. If selected, the content of the quotation is displayed.
- **Comments:** Adds the comment you have written for a quotation to the report.

Options in the Code Manager

- Add the **Creating & Modifying User** to the report.
- **Used in Documents:** Adds the documents where the code has been applied. If selected, you can add further information about the document(s) from the subtree.
- **Groups:** Adds the groups that a code is a member of. If selected, you can add further information about the group(s) from the subtree.
- **Linked Codes:** Adds the codes that are linked to a code. If selected, you can add further information about the linked code(s) from the subtree.
- **Quotations:** Adds a list of quotations coded by the code (ID, reference, quotation name, and document name). If selected, you can add further information about the quotations(s) from the subtree, e.g. their content.
- **Linked Memos:** Adds the memos that are linked to a code to the report. If selected, you can add further information about the memo from the subtree, like the memo content.
- **Comments:** Adds the comment you have written for a code to the report.

Options in the Memo Manager

- Add the **Creating & Modifying User** to the report.

- Groups: Adds the groups that a memo is a member of. If selected, you can add further information about the group(s) from the subtree.
- Linked Codes: Adds the codes that are linked to a memo. If selected, you can add further information about the linked code(s) from the subtree.
- Linked Quotations: Adds a list of quotations linked to the memo (ID, reference, quotation name, and document name). If selected, you can add further information about the quotations(s) from the subtree, e.g. their content.
- **Linked Memos:** Adds the memos that are linked to a memo to the report. If selected, you can add further information about the memo from the subtree, like the memo content.
- Content: Adds the memo content to the report.
- Comments: Adds the comment you have written for a memo to the report.

Options in the Network Manager

- Add the Creating & Modifying User to the report.
- Groups: Adds the groups that a network is a member of. If selected, you can add further information about the group(s) from the subtree.
- Comments: Adds the comment you have written for a network to the report.

Predefined Reports

Predefined reports are essentially a shortcut for creating text or PDF reports from Managers. You find a Generate Report menu entry under the main menu for Document, Quotation, Code, Memo and Network.

After selecting an option, you see the same window when selecting the *Export as Report* option in the Managers, as has been described above. The only difference is that the fitting options have already been selected for you. You can add further options to the report.

For Documents

For quotations, you have the following pre-defined reports:

- Documents and Groups: A report that contains all documents and their type, and the groups they are a member of.
- Document Groups and Members: A report that contains all document groups and their members.

For Quotations

For quotations, you have the following pre-defined reports:

- **Quotations by Document:** A report that contains all quotations with their content and comments including the document name
- **Quotations by Codes:** A report that contains all quotations with their content including the document name for each code
- **Hyperlinks with Comments:** A report that contains all hyperlinks. Included are the quotation ID, the reference, the quotation and document name for both source and target quotation, and the relation linking the two.

For Codes

For codes, you have the following pre-defined reports:

- **Codebook:** A report that contains all codes and their comments. If you want to add a code book to the appendix of a thesis or a report, we recommend using the spreadsheet option.
- **Codes by Documents:** A report that contains all codes and their comments, sorted by documents in which they occur.
- **Code Groups and Members:** A report that contains all code groups and their members.

For Memos

For memos, you have the following pre-defined reports:

- Creates a report that contains a list of all documents and their group membership
- Creates a report that contains all document groups with their members

For Networks

For memos, you have the following pre-defined reports:

- Creates a report that contains a list of all documents and their group membership
- Creates a report that contains all document groups with their members

Types of Reports

You have the following export options:

Reports

- Reports from managers as text or PDF, or as spreadsheet.
- Reports from the Quotation Reader as spreadsheet.
- Reports from the Query Tool as spreadsheet.

See Creating Reports for further information.

Data Export

- You can export all documents
- You can export all data for further use in SPSS in form of a syntax file.
- You can create a generic export of all data for further use in a statistical software like R, SAS, etc. in form of a spreadsheet.

Project Export

- You can export the entire project in QDPX format for use in another QDAS (qualitative data analysis software) that supports QDPX import.
- You can export the entire project in XML format.

Tables

- All tables and the word list can be exported as spreadsheet. See Code Document Table and Code Co-Occurrence Table.

Exports in PDF Format

- The document with margin and networks can be exported in PDF format via the menu option Project > Print.

Exports as Image Document

- Sankey diagrams and word clouds can be exported as graphic file.

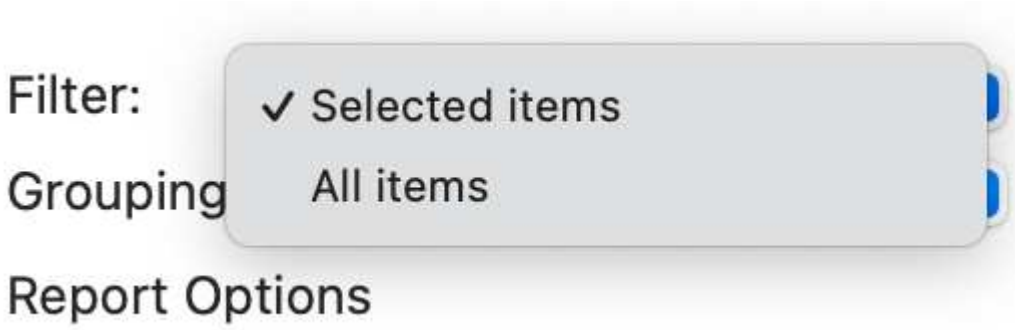
Create Word / PDF Reports

Creating Report from the Code Manager

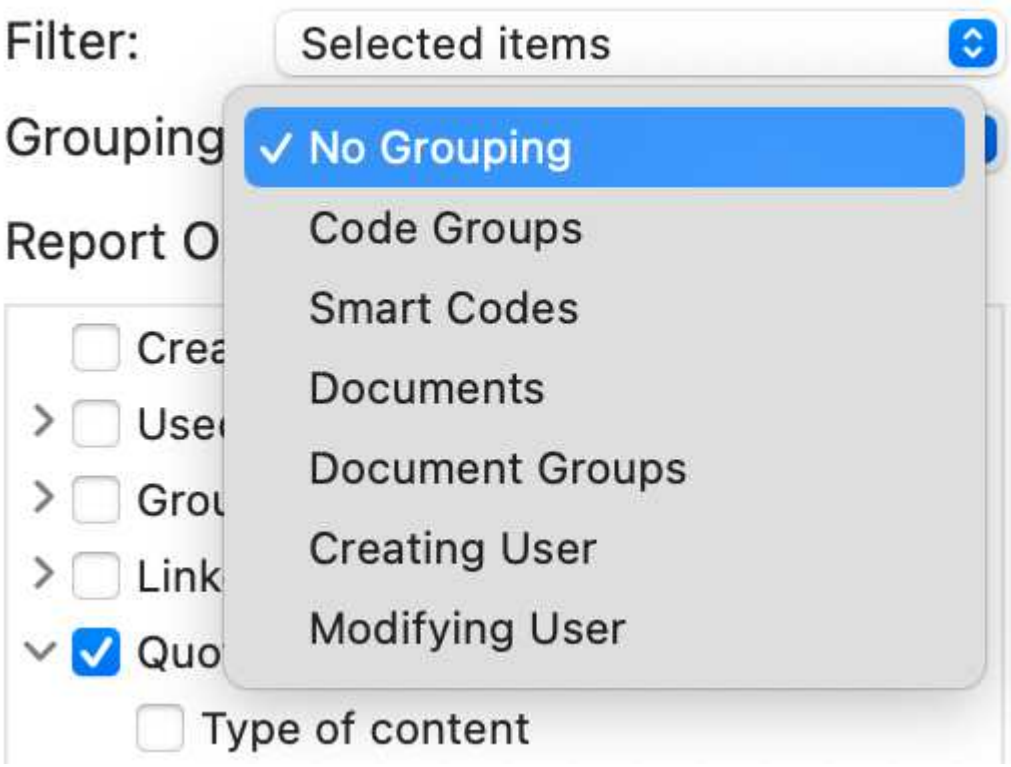
If you want a text report of quotations for selected codes, then creating a report form the Code Manager is the best option.

> Open the Code Manager. Select one or multiple codes or set a code group as filter if you do not want to create a report for all codes.

> Select a filter option: If you selected some codes or set a code group as filter, you can still change and export all codes.



> You can group the report by:



If you select "SmartCodes" quotations of smart codes are listed first in the report.

When you select a grouping option, further options are presented to you, e.g. whether you want to also export the comment of the code group or document.

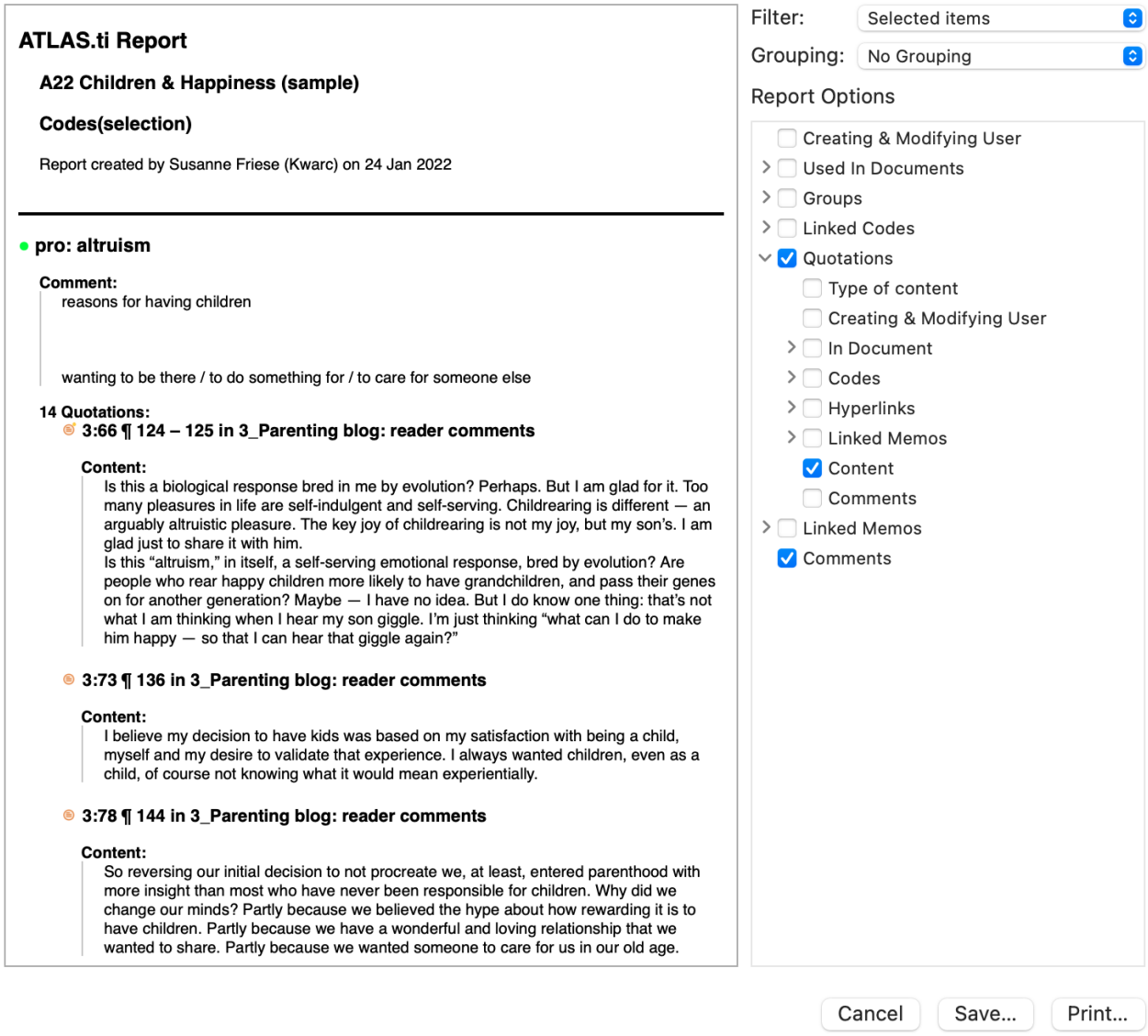
If a selected code is in multiple code groups, then the quotations for this code will occur multiple times in the report.

> Next select what should be included in report.

When selecting Groups, Quotations, Memos or Codes, you can select further options. To do so, click on the small triangle before the item to open the branch. To create a report for quotations, you need to select "content", otherwise the report only includes quotation names. See selected options below.

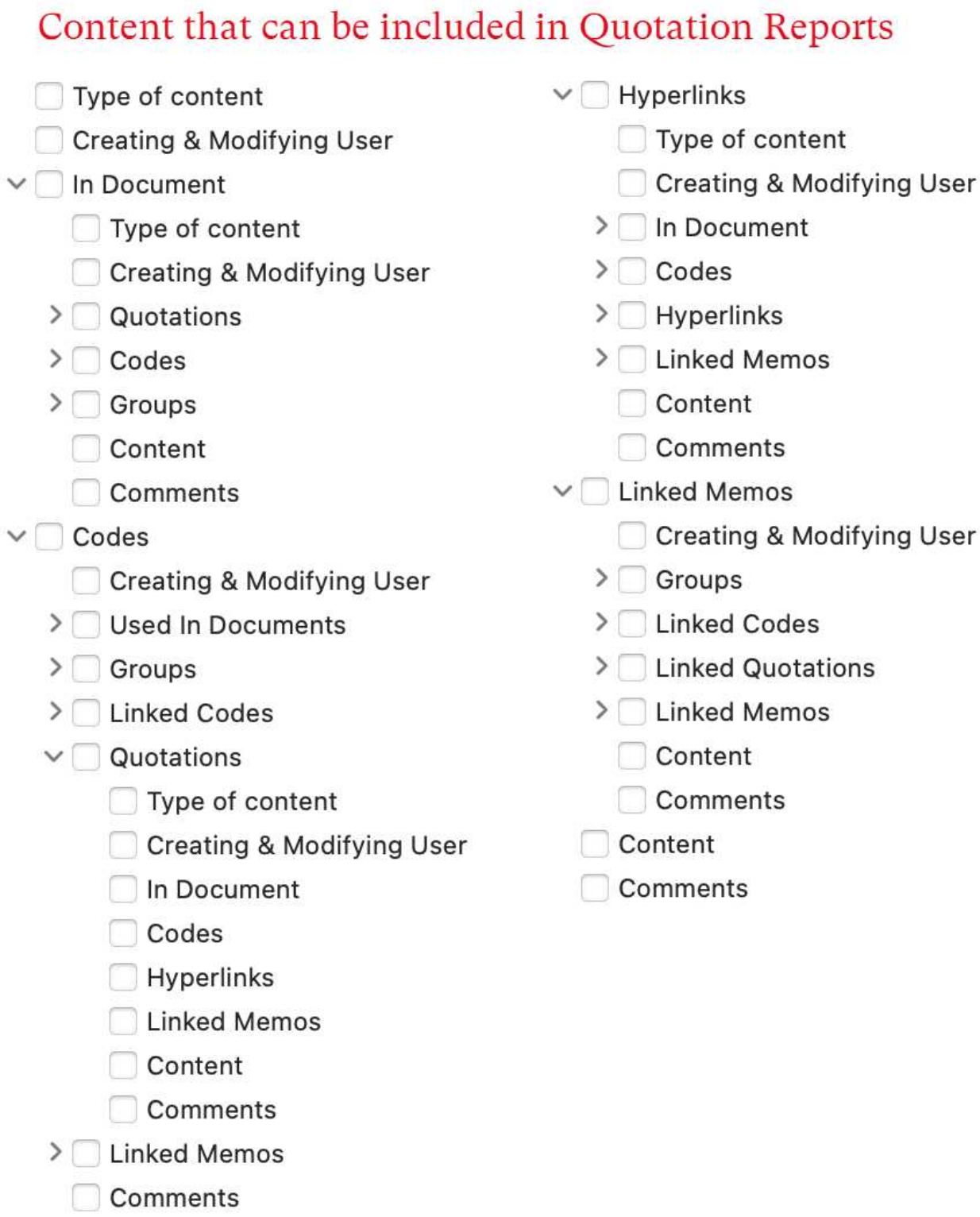
On the left-hand side you see a preview that shows you how the final report will look like. The preview changes as soon as you select or deselect an option.

> If the report contains everything that you want, click on **Save** to save the report as Word document. Click on **Print** to print the report, or to save it as PDF file.



Creating reports from the other managers works in essentially the same way. Below only the options are shown that you can select in each manager. The basic idea is that you can flexibly create any type of report with anyCon type of content that you need.

Quotation Manager Reports



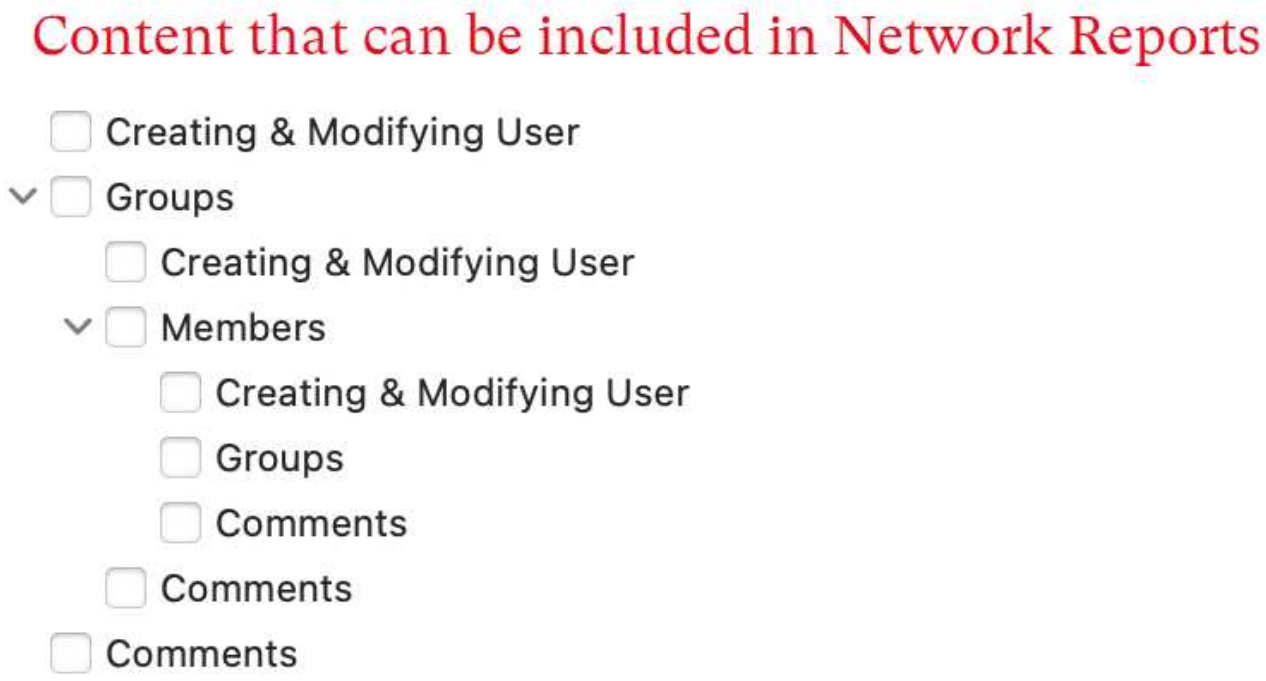
Document Manager Reports

Memo Manager Reports

Content that can be included in Memo Reports

- Creating & Modifying User
- Groups
  - Creating & Modifying User
  - Members
  - Comments
- Linked Codes
  - Creating & Modifying User
  - Used In Documents
  - Groups
  - Linked Codes
  - Quotations
  - Linked Memos
  - Comments
- Linked Quotations
  - Type of content
  - Creating & Modifying User
  - In Document
  - Codes
  - Hyperlinks
  - Linked Memos
  - Content
  - Comments
- Linked Memos
  - Creating & Modifying User
  - Groups
  - Linked Codes
  - Linked Quotations
  - Linked Memos
  - Content
  - Comments
- Content
- Comments

Network Manager Reports



Creating Excel Reports

Info Sheet for Excel Reports

All Excel reports have an additional sheet that shows meta information like the type of the report, the project name, date of export and name of exporting user.

The info sheets for reports based on the Code Document- and the Code Co-occurrence Table, and Inter-coder Agreement Analysis contain further information.

- abbreviations that are used
- Code Document Table: Information about which relative frequency count is used
- Code Co-occurrence Table: whether the c-coefficient was selected
- ICA reports: coder names

Info Sheet in Excel

	A	B
1	**Title:**	ATLAS.ti - Code Document Report
2	**Project:**	name of project
3	**User:**	name of user
4	**Date:**	daten and ntime
5		
6	**Values:**	Absolute and Column-relative frequencies
7	**Count:**	Quotations
8	**Normalize:**	Table values are normalized
9		
10	**Abbreviations**	
11	**Gr**	Groundedness of codes (number of quotations coded by a code) or documents (quotations created in a document)
12	**GS**	Number of documents in a document group or number of codes in a code group
13		
14		
15		
16		
17		
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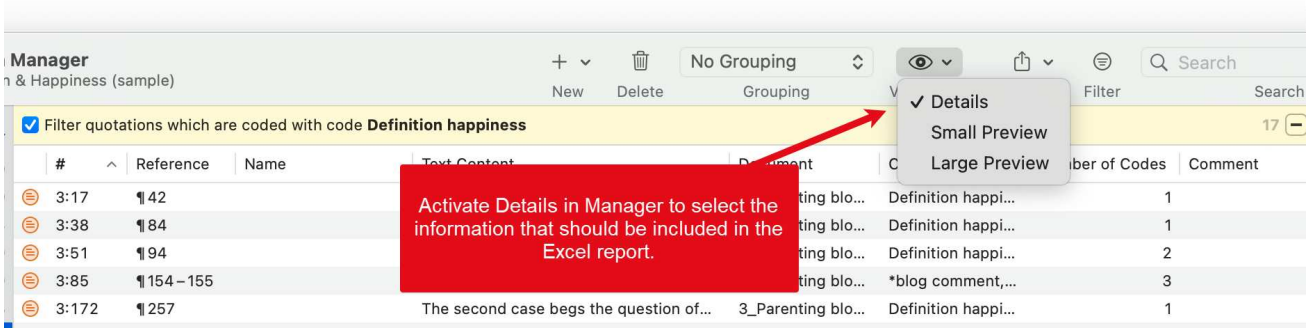
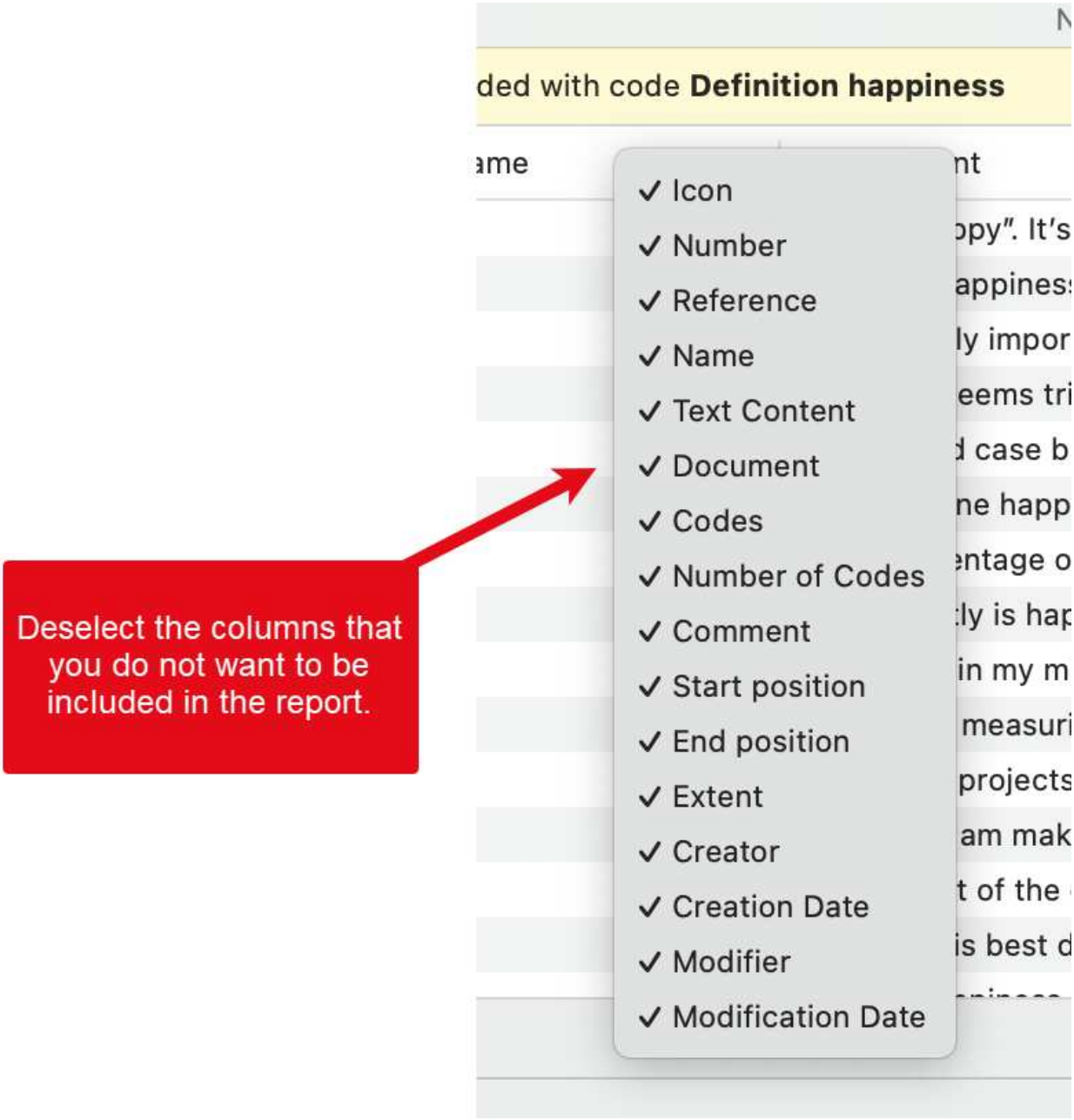
22		
23		
24		

CodeDocumentTable | **Info**

In every manager you find a button to create an Excel report. The Excel report contains all columns from the Manager that are currently visible in Detail mode. By default, everything will be displayed.

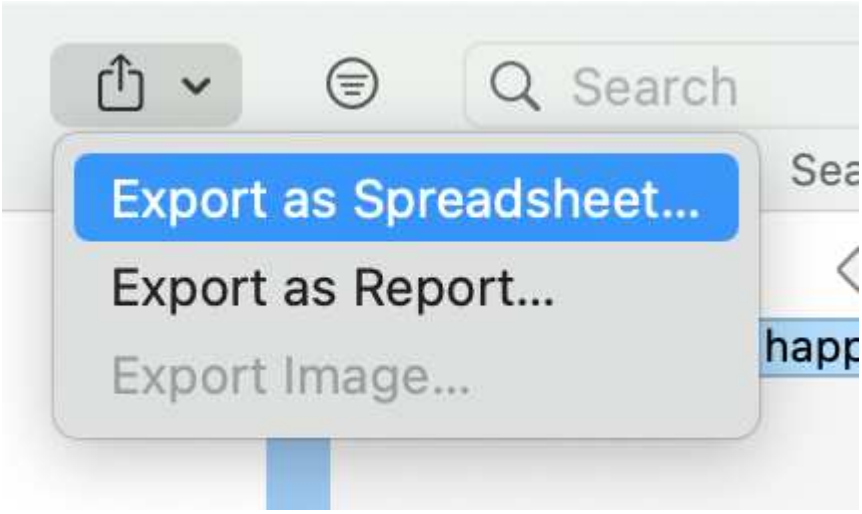


> If you do not want to include all information, right-click on a column and deselect what you do not want to be included:

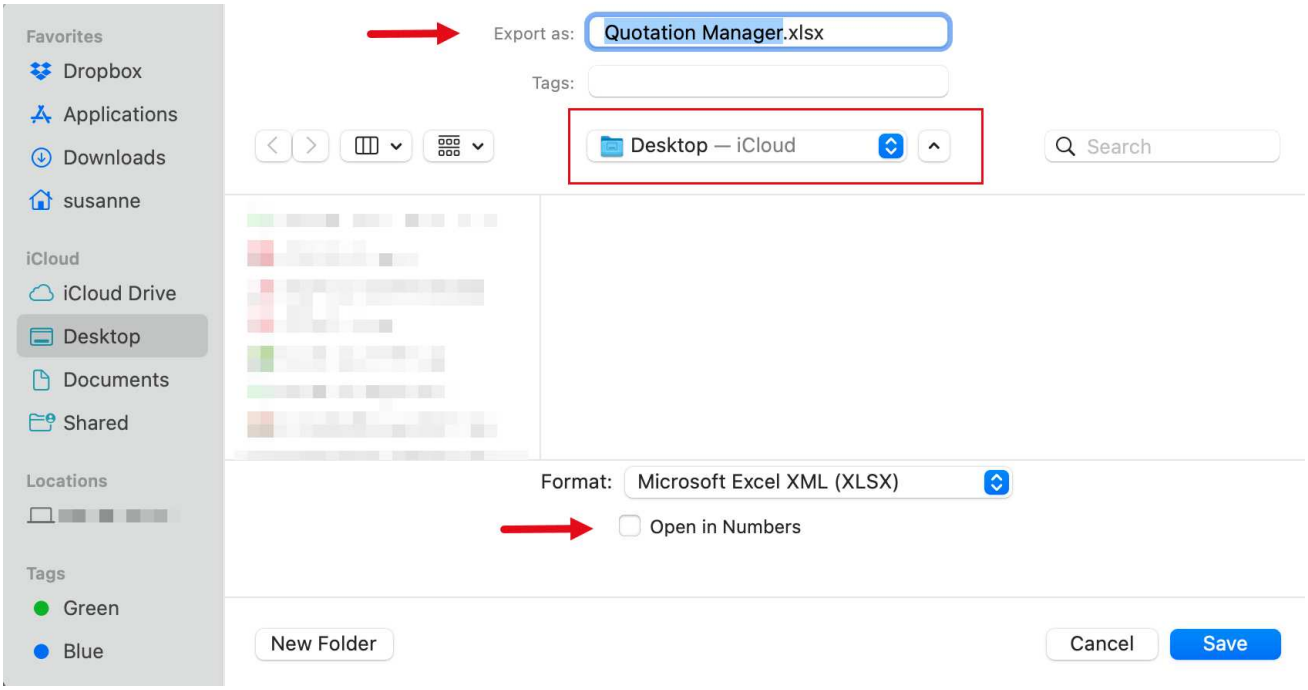


To create for instance a report that contains all quotations of a code, open the Quotation Manager, select a code or a category whose quotation you want to export.

Select the **Export** button, and from there **Export as Spreadsheet**:



> The file dialogue opens. Select a location where you want the file to be saved. Change the default name for the file to represent what you are exporting, e.g. the name of the code, code group or category. If you want to open the report immediately, select Open in Numbers (Excel)



> As soon as you click on Save, the report is created. Below you see an example report:

Number	Reference	Name	Text Content	Document	Codes
3:17	¶ 42		Define “happy”. It’s a feeling. Most of us have feelings ranging from excitement, pride, happy, angr	3_Parenting blog: reader comments	Definition happiness: is subjective
3:38	¶ 84		The term happiness is very subjective, and I feel most Americans would rather make their mark on thi	3_Parenting blog: reader comments	Definition happiness: is subjective
3:51	¶ 94		It is critically important to distinguish between the sense of “fulfillment” in having accomplished	3_Parenting blog: reader comments	Definition happiness: fulfillment, Sentiment: Negative
3:85	¶ 154 – 155		Indeed, it seems tricky to define “happiness” in this sort of a study or survey. While being “happy	3_Parenting blog: reader comments	*blog comment, Definition happiness: long term view, Have
3:172	¶ 257		The second case begs the question of what exactly is happiness. While being happy is a momentary sta	3_Parenting blog: reader comments	Definition happiness: long term view
3:190	¶ 279		Count no one happy until they have reached the end of their lives and can say that they had more goo	3_Parenting blog: reader comments	*blog comment, Attitude: = level of happiness, Definition ha
3:195	¶ 287		What percentage of elderly folks in the industrialized world are thrilled that they never had childr	3_Parenting blog: reader comments	Definition happiness: long term view, pro: self-centered
3:240	¶ 50		What exactly is happy? I agree, I don’t have the trivial or lighthearted happiness I used to have, o	3_Parenting blog: reader comments	*blog comment, Definition happiness: long term view, Have
3:299	¶ 257		Happiness in my mind is more akin to self-realization, feeling whole – this is not the same as havin	3_Parenting blog: reader comments	Definition happiness: fulfillment
3:314	¶ 43		How about measuring a sense of purpose and fulfillment? Maybe the results would be different. Parent	3_Parenting blog: reader comments	Definition happiness: fulfillment
4:5	¶ 11		I also have projects that so consume and delight me that I never find myself sitting around wishing	4_NYTM: reader comments on article "All Joy and No fun"	Definition happiness: fulfillment
4:12	¶ 11		The point I am making is that "happy" is not a one size fits all word. "Happy" means very different	4_NYTM: reader comments on article "All Joy and No fun"	Definition happiness: is subjective
4:34	¶ 45		At the heart of the debate for me is not day-to-day happiness, but growth and fulfillment. My son ha	4_NYTM: reader comments on article "All Joy and No fun"	Definition happiness: fulfillment, Definition happiness: long
4:51	¶ 84		happiness is best defined in the ancient Greek sense: leading a productive, purposeful life. And the	4_NYTM: reader comments on article "All Joy and No fun"	Definition happiness: fulfillment
4:85	¶ 123		But, my happiness has nothing whatsoever to do with my kids or my husband.....happiness is a choice	4_NYTM: reader comments on article "All Joy and No fun"	Definition happiness: is subjective, sources of happiness:
4:96	¶ 140		I agree with Martin Seligman when he says happiness is defined as leading a productive, purposeful l	4_NYTM: reader comments on article "All Joy and No fun"	Definition happiness: fulfillment
5:1	¶ 1	Nobody is happy all of the time, but some people a..	Nobody is happy all of the time, but some people are definitely more fulfilled than other	5_Happiness Research: main findings	Definition happiness: fulfillment

Example Reports

All quotations for one or multiple codes (Excel report)

> Open the **Quotation Manager**. Select one or multiple codes in the filter area on the left. To select multiple codes, hold down the cmd-key.

> Click on the **Export** button and select **Export as Spreadsheet**.

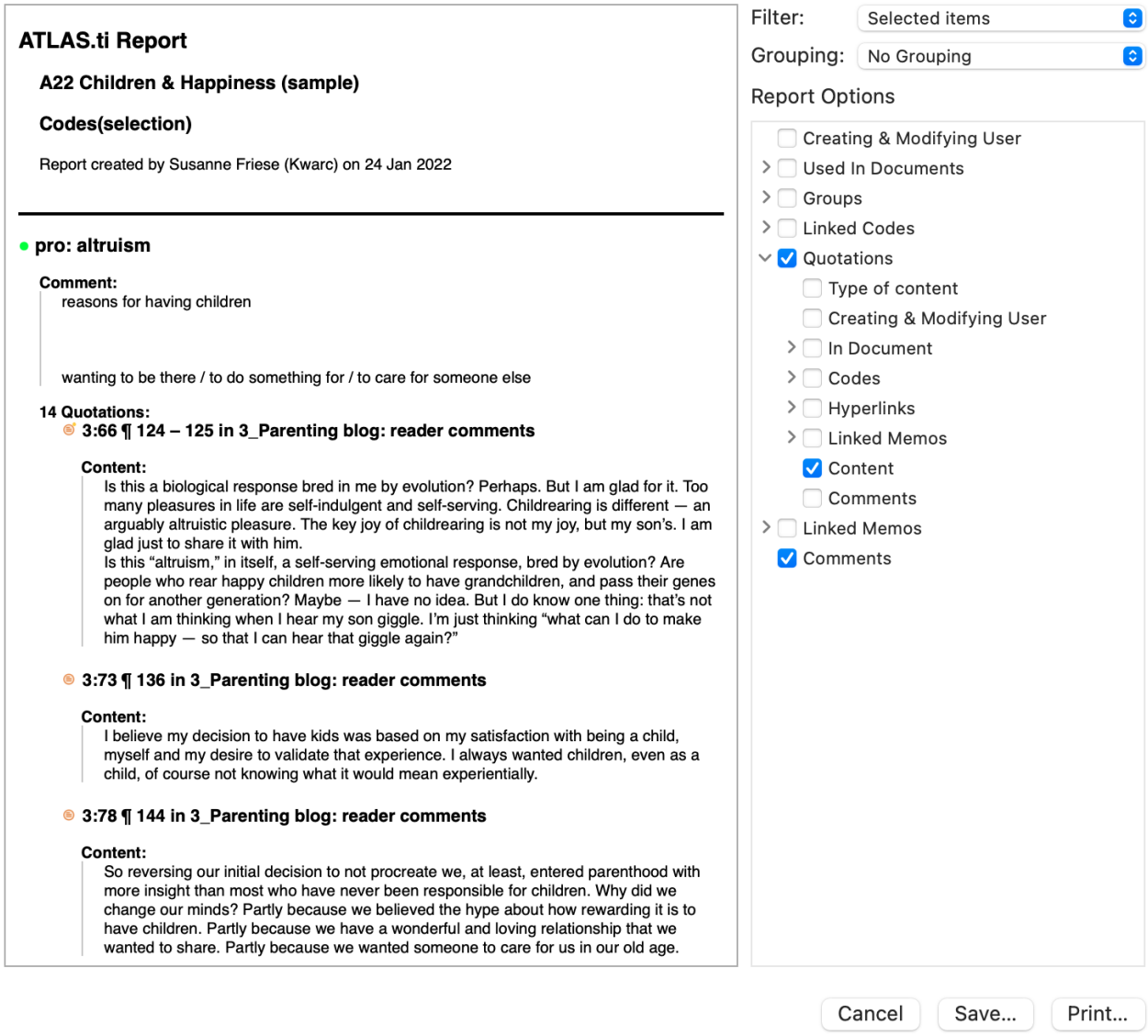
ATLAS.ti exports all columns that you see in "Detail View". The default view is "Small Preview". If you want to change this, click on the **View Mode** button. If you right-click on a column header, you can select which columns are displayed.

All quotations for one or multiple codes (Text Report)

> Open the **Code Manager**. Select one or multiple codes. To select multiple codes hold down the cmd-key.

> Click on the **Export** button and select **Export as Report**.

You see a preview as shown below. For creating a report 'all quotations for selected codes', select **Quotations** plus the option **Content** from the subtree. If you also want to export the comment for each code, select **Comments** as well as shown in the example below.



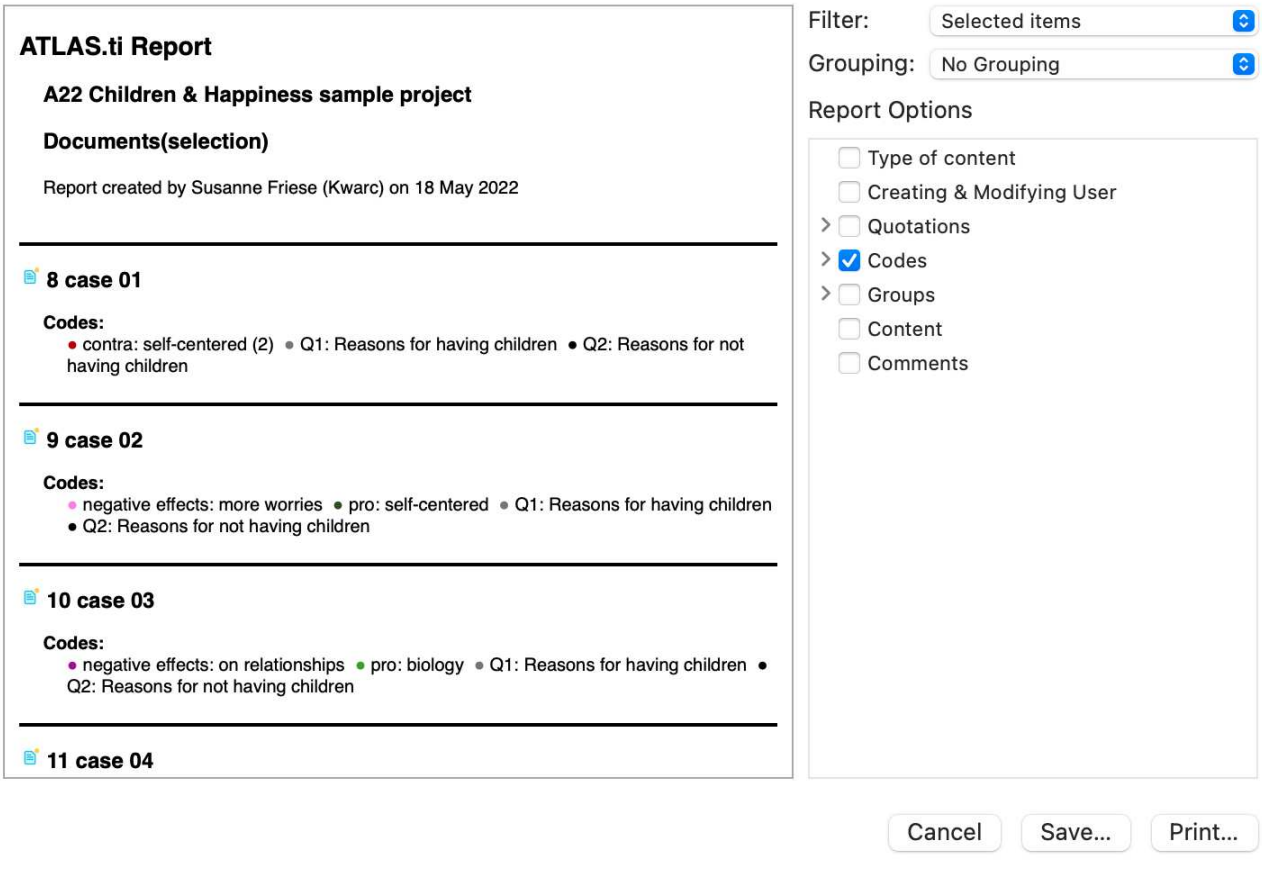
Once the report looks like as you want it to look like, click on **Save** or **Print**.

Report: Documents and their codes

Open the Document Manager and select all documents that you want to export with their codes.

Click on the **Export** button and select **Export as Report**.

In the preview window, select **Codes** and possibly other options. See image below.



Once the report looks like as you want it to look like, click on Save or Print.

Report: For multimedia data (Excel)

If you have utilized the quotation level when working with multimedia data and have replaced the default quotation name with summaries of what can be seen or heard in the multimedia quotations, this is how you create a useful report:

Select multimedia quotations in the Quotation Manager.

inst Click on the Export button and select Export as Spreadsheet.

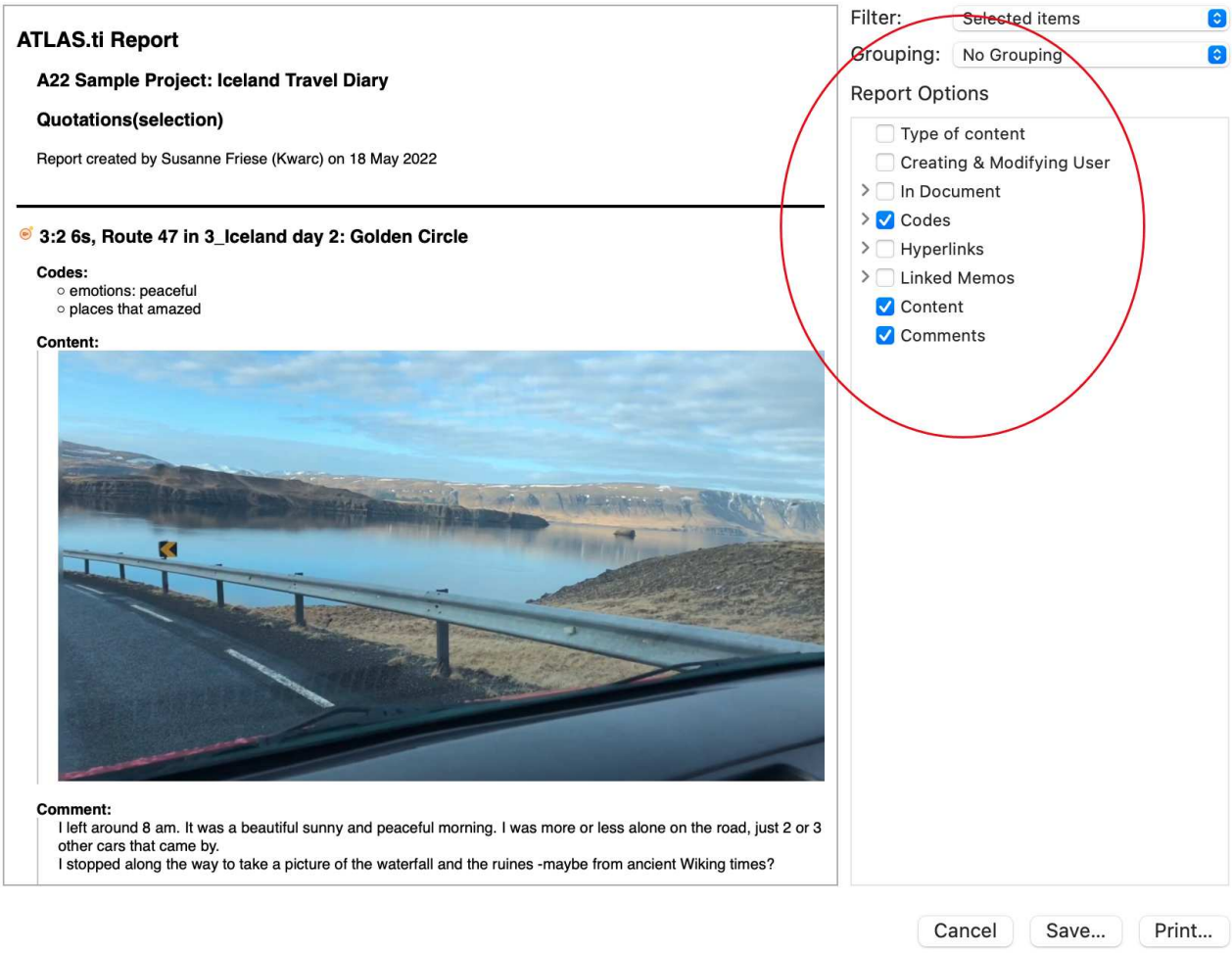
The report will show an overview of all the titles you have created for your image audio or video segments (name), the comments you have written and the codes that you have applied. Plus, it provides the exact position within the multimedia file.

Document	Start position	End position	Extent	Name	Comment	Codes
Iceland day 2: Golden Circle	0:00:06.894	0:00:16.728	0:00:09.834	Route 47	When this stretch of road was part of Route 1, it was very treacherous due to heavy traffic and difficult situations. It was not completely paved until 1990. About two years before Hvalfjörður Tunnel opened, new bridges were constructed along the route to replace dangerous single-lane bridges over the Botnsá and Brunná rivers. There were originally three general stores along the route. A shop at the bridge over Botnsá river was closed by the time a proper road was built. There was also a hut at Miðsand, and a third was near the Ferstikla farm, near the intersection with Dragavegur (Route 520). Business declined with decline in traffic. Today traffic is generally low, however there is significant recreational traffic on nice summer days. There has been considerable development in tourism in Hvalfjarðarsveit in recent years, and a growing number of residents in Kjósin. The road is also used as an alternative for the Hvalfjörður Tunnel, and traffic increases significantly while the tunnel is closed.	emotions: peaceful, places that amazed
Iceland day 2: Golden Circle	0:00:17.457	0:00:30.494	0:00:13.037	Route 48	Route 48 is partly a dirt route. The speed limit was reduced to 70 (from the normal 90). But I would never drive 70 with so many holes in the road :-). I was driving between 20 - 30 km per hour. Again noone else on the road. I saw one other camper van. They had probably stayed there overnight, which is not legal. But they probably took the risk because at this time of the year, it seemed quite deserted. Turning onto Route 36 from there to enter Pingvellir National Park	places that amazed

Report: For multimedia data (Text Report)

inst Start as described above by selecting multimedia quotations in the Quotation Manager. Next, click on the **Export** button and select **Export as Report**.

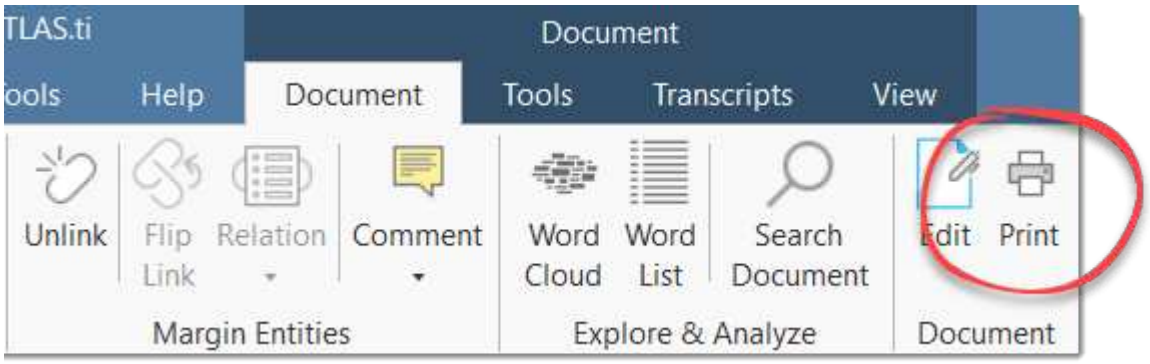
> In the preview window, select **Comments** and possibly other options like **Codes**, if you want to see which codes have been applied to a quotation. See image below.



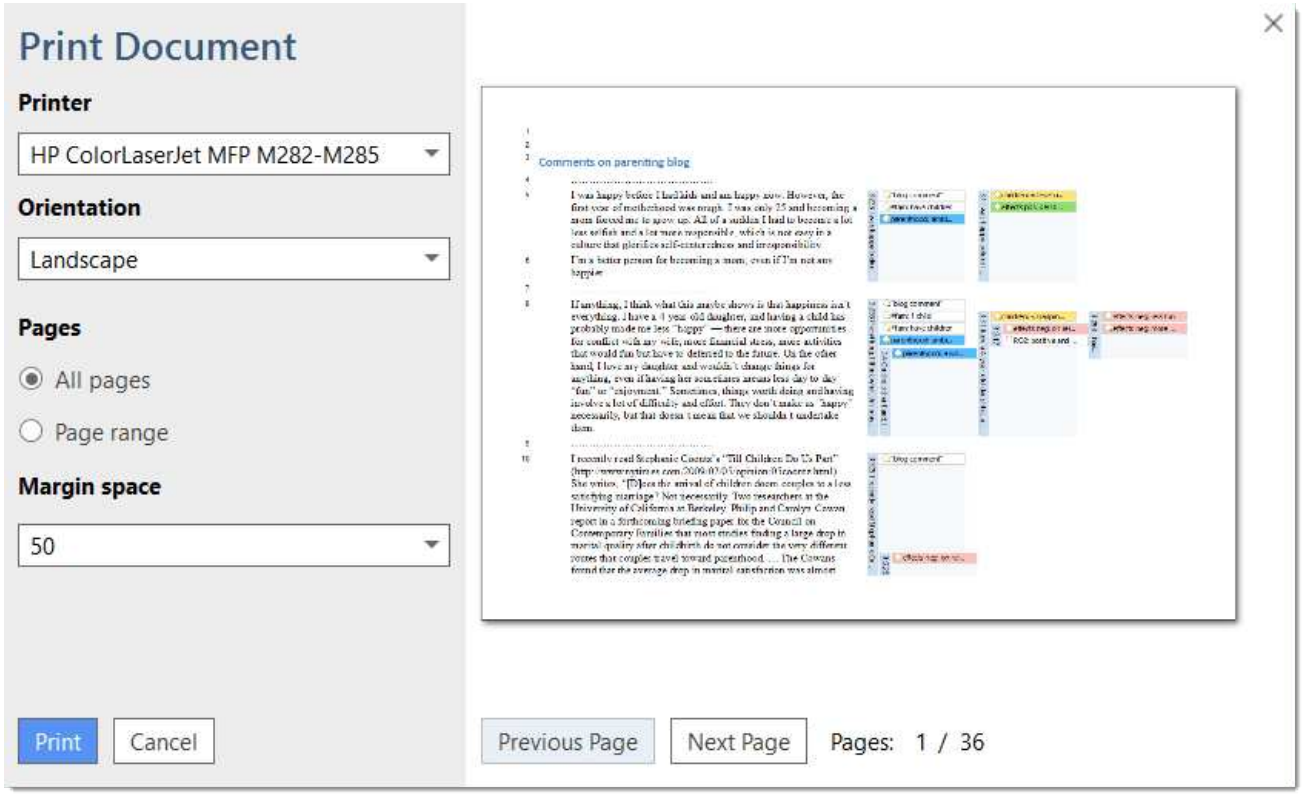
Once the report looks like as you want it to look like, click on **Save** or **Print**.

Print Documents with Margin

> If you want to print a document as you see it on your screen including the margin area, select the **Print** option in the Document Ribbon.



Then the following dialog opens:



Printer: Select if you want to send the output to a printer or whether you want to save it as PDF document.

Orientation: The default selection is 'Landscape', as this is likely the best option to see the document and all codes in the margin area.

Margin space: Under 'Margin space', you can adjust the width of the margin if you need more or less space.

Pages: You can print all pages, or a page range.

With the 'Previous' and 'Next Page' buttons you can preview all pages.

The **print with margin** option is available for text, PDF and image documents.

Predefined Reports

Predefined reports are essentially a shortcut for creating text or PDF reports from Managers. You find a **Generate Report** menu entry under the main menu for Document, Quotation, Code, Memo and Network.

After selecting an option, you see the same window when selecting the *Export as Report* option in the Managers, as has been described in Creating Reports. The only difference is that the fitting options have already been selected for you. You can add further options to the report.

For Documents

For quotations, you have the following predefined reports:

- **Documents and Groups:** A report that contains all documents and their type, and the groups they are a member of.
- **Document Groups and Members:** A report that contains all document groups and their members.

For Quotations

For quotations, you have the following predefined reports:

- **Quotations by Document:** A report that contains all quotations with their content and comments including the document name
- **Quotations by Codes:** A report that contains all quotations with their content including the document name for each code
- **Hyperlinks with Comments:** A report that contains all hyperlinks. Included are the quotation ID, the reference, the quotation and document name for both source and target quotation, and the relation linking the two.

For Codes

For codes, you have the following predefined reports:

- **Codebook:** A report that contains all codes and their comments. If you want to add a code book to the appendix of a thesis or a report, we recommend using the spreadsheet option.
- **Codes by Documents:** A report that contains all codes and their comments, sorted by documents in which they occur.
- **Code Groups and Members:** A report that contains all code groups and their members.

For Memos

For memos, you have the following predefined reports:

- **Memos with Content:** Creates a report that contains all memos including the creating and modifying user, the content and comment.
- **Memos with Content and Linked Quotations:** Creates a report that contains all memos including the creating and modifying user, the content, comment, and all linked quotations (ID, reference, name and document name). You may want to add the quotation content as well.
- **Memos and Groups:** A report that contains all memo groups and their members.
- **Memo Links:** A report that contains a list of memo-code links.

For Networks

For networks, you have the following pre-defined reports:

- **Code-Code Links with Comments:** Creates a report that contains a list of code-code links including the relation name and- comments.

Exporting Data

ATLAS.ti offers various ways to export your data for use in other programs.

- a SPSS syntax file
- a Excel file for use in other statistical software like R, STATA, etc.
- a project file in the QDPX universal data exchange format for importing your projects in other QDA software
- an export of all documents that have been added to a project
- your project in XML format for customized usage (Mac only)

Exporting Documents

You can export all documents that you have added to an ATLAS.ti project.

- PDF and multimedia files (audio, video, images) are exported in their original format.
- Text documents are exported as Word (docx) files. The formatting of the exported document may differ from the original, as all text documents are converted to html when they are imported.

To export documents:

> Open the Document Manager and select all documents that you want to export.

> From the main menu select **Document** > **Export** > **Documents**.

Data Export For Further Statistical Analysis

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 using statistical approaches. ATLAS.ti can export your data in form of a *syntax* file for SPSS®, and a generic Excel format that can be imported into software like R, SAS, STATA as well as SPSS.

The basic components for statistics are cases and variables. The statistic export function in ATLAS.ti treats codes as variables and data segments (quotations) as **cases**.

The notion of a "case" here is rather fine-grained and differs from the common understanding of this term. Usually cases in qualitative research refer to persons, interviews, or documents. We chose to treat the smallest unit as a case for the statistical export, to ensure that no data is lost. Broader information, e.g., which document or document group a quotation belongs to, is coded into the various variables.

In contrast to the dichotomous treatment of codes within ATLAS.ti, you can use codes for further statistical analysis as ordinal or interval scaled variables by using a specific code-naming convention.

Scaled vs. Dichotomous Codes

Within ATLAS.ti, a code is always *dichotomous*, because it either refers to a given quotation ("1"), or it does not ("0"). Each case (= quotation) can, in respect to the codes, be described as a vector of 0's and 1s. The concept of scaled codes/variables requires a special syntax.

If you for instance want to code for three different levels of evaluating something: very good, good, neither god nor bad, bad, very bad, A special naming convention (name%value) is necessary to let ATLAS.ti identify scaled codes from dichotomous codes. When coding the data, the code category needs to look as follows:

EVALUATION

- evaluation%1 very bad
- evaluation%2 bad
- evaluation%3 neither good nor bad
- evaluation%4 good
- evaluation%5 very good

This notation allows the system to construct *one* variable from all codes with the same prefix. The variable name will be "evaluation", and the values for this variable are:

- 1 very bad
- 2 bad
- 3 neither good nor bad
- 4 good
- 5 very good

Instead of the % as separator, you can also choose a different separator. If so, you need to indicate this when preparing the SPSS syntax file.

You can use string or numerical values; anything that follows the special symbol is interpreted as a value.

Keep in mind that ordinal codes only have meaning in the context of the statistic program you are using. Within ATLAS.ti, the differently valued codes are treated like every other code - as 0 or 1: has been applied, or has not been applied.

Do *not* assign more than one scaled variable value to the same quotation. Although ATLAS.ti permits an arbitrary number of codes to be attached to a quotation, this would not make much sense with mutually exclusive values of scaled variables. If you do so, the SPSS generator will simply ignore additional values after processing the first one it finds for a given quotation. Since it cannot be guaranteed which value will be detected first, this will most likely produce unpredictable results.

SPSS Syntax Export

ATLAS.ti can export your coded data in form of an SPSS syntax file as plain ASCII text file. This allows you to modify the syntax before running it in SPSS.

When transforming your data into numbers, codes and code groups become **variables** and all quotations become **cases**. Additional variables like document numbers, document groups and document type indicating where a quotation belongs to and document groups allow you to aggregate your data in SPSS.

Creating a Syntax File

> From the main menu, select **Project** > **Export** > **SPSS Syntax File.**
> The SPSS Job Generation Window opens. You have the following options:

- **Use separate file:** When checked, the data matrix is written to a separate file. This is mandatory if the size of the matrix exceeds a certain size. SPSS cannot handle large data sets within a syntax file. For regular size projects, leave this option unchecked.
- **Specify the name of the data set.** This name is used as the file name and as the FILE reference from the DATA LIST section. You only need to enter a name here if you generate separate data files.
- **Create a fresh data file during next run** can be unchecked if the data has not changed since it was last created. This may save some processing time.
- **Include quotation's author.** Check if you want to export an additional variable that indicates the author for each quotation. This is for example useful if you want to use SPSS to calculate inter-coder reliability.
- **The value separator** is % by default, but can be changed to something else. See Naming Convention For Scaled Codes.
- **Create task section.** Enable this option if you want templates for procedures included at the end of the syntax file.
- **Create SAVE OUTFILE instruction.** Enable this option if you want SPSS to save the data as *.sav file after running the syntax file.

> Specify all desired properties and click **Export SPSS**.
> You can now run the file in SPSS, or make some changes to the syntax file before you run it.

The Syntax File Explained

The output of the SPSS generator is a complete SPSS syntax file containing variable definitions, optionally the data matrix and some default jobs statements:

VARIABLE LABELS are taken from code and code group names.

VALUE LABELS for variables created from codes are:

- Yes (1) - code is assigned
- No (0) - code is not assigned

Every case (quotation) is described by the codes that are attached it to, the document,the position in the document (start and end position), author, media type and date of creation.

Start and End Positions

There are two variables for the start position (SY and SX) and two variables for the end position (EY and EX) for a quotation. Depending on the media type, they are used for different start and end coordinates.

Data Type	SY (start)	SX (start)	EY (end)	EX (end)
Text (rich text)	paragraph	Column character, quotation based	paragraph	Column character, quotation based
PDF	page	character count, page based	page	character count, page based
Audio	---	milliseconds	---	milliseconds
Video	---	milliseconds	---	milliseconds
Image	SX and SY indicate the position of the upper left hand corner of the image		EX and EY indicate the position of the lower right hand corner of the image	
Geo	---	---	---	---

Creation Date

The date of creation is shown in the unix timestamp format. You can convert it into human-readable time by using a converter, for instance: https://www.epochconverter.com/

Variable Labels

An example:

VARIABLE LABELS D 'Document'.

VARIABLE LABELS QU 'Q-Index'.

VARIABLE LABELS SY 'Start y-Pos'.

VARIABLE LABELS SX 'Start x-Pos'.

VARIABLE LABELS EY 'End y-Pos'.

VARIABLE LABELS EX 'End x-Pos'.

VARIABLE LABELS TI 'Creation Date'.

VARIABLE LABELS C1 'Audio'.

VARIABLE LABELS C2 'just a name'.

VARIABLE LABELS C3 'Evaluation'.

VARIABLE LABELS C4 'Buddha'.

VARIABLE LABELS C5 'Code name with more than 40 characters'.

VARIABLE LABELS C6 'Fish'.

VARIABLE LABELS C7 'Geo Code'.

VARIABLE LABELS C8 'Octopus'.

VALUE LABELS C1 to C2 1 'YES' 0 'NO'.

VALUE LABELS C3 0 'NO' 1 'bad' 2 'good' 3 'not so good'.

VALUE LABELS C4 to C8 1 'YES' 0 'NO'.

VARIABLE LEVEL C3 (ORDINAL).

Document Type Declaration.

IF (D = 5) MediaType = 1.

IF (D = 4) MediaType = 2.

IF (D = 6) MediaType = 3.

IF (D = 1) MediaType = 4.

IF (D = 3) MediaType = 5.

IF (D = 2) MediaType = 6.

VALUE LABELS

- 1 'text'

- 2 'PDF'
- 3 'graphic'
- 4 'audio'
- 5 'video'
- 6 'geo'

Treatment of Code Groups

Code groups in SPSS jobs count how many of the codes in the code group have been assigned to the quotation.

Code groups are named: CG1, CG2 and so on.

Calculation: COMPUTE CG1 = C10 + C11 + C12 + C13 + C14 + C15.

VARIABLE LABELS CG1 'name of code group'.

Scaled codes are ignored in the computation of code groups variables. See Export for further Statistical Analysis.

Treatment of Document Groups

For each case (= quotation) there is a document and document group variable. If the document a quotation is part of also belongs to a document group, the value for the document group is 1.

Calculation: COMPUTE DG1 = 0. IF (D = 5 or D = 4) DG1 = 1.

VARIABLE LABELS DG1 'DG_Document group name'.

Generic Export for further Statistical Analysis

If you are using statistical software like SAS, STATA or R; or do not want to run a syntax file in SPSS, you can create a generic export. The generic format needs to be imported using the Excel import option of the software you are using.

> To prepare a generic export, select **Project** > **Export** > **Statistical Date (XLSX)** from the main menu.
> The exported file contains the following data:

- CASENO: each quotation is a case
- D: document number
- Document name: name of the document
- Media type: type of document
- quote_start: start position of a text quotation
- quote_end: end position of a text quotation
- start_time: start position of
- end_time: end position of an audio- or video quotation
- SY / SX / EY / EX:coordinates of an image quotation
- DG_name: quotation occurring in a document of the document group
- code: assigned / not assigned to the code
- CG_name: assigned / not assigned to a code of the code group

To import the data for instance to **RStudio**, select *File/Import Data Set* in RStudio.

QDPX - Universal Data & Project Exchange

The QDPX data format allows for full project exchange with other CAQDAS packages. This is a major step toward a new degree of freedom in research and opens new dimensions for all practitioners of qualitative data analysis.

> "*We are very excited to see that - after fifteen years of ATLAS.ti being the only manufacturer to steadfastly champion universal data exchange - other software makers are now coming around to seeing the benefit of not holding users' data hostage any longer.*
> *ATLAS.ti responded to the wishes of researchers early on by offering an open, application-independent export format for universal use. This long-standing commitment to academic openness and the free flow of ideas is now being recognized as an important value in itself.*
> *I am convinced that being able to move projects seamlessly between different applications will be of great benefit to the research community. We are extremely proud to have been pioneers of this movement, and we are looking forward to the many advancements it will bring!*" Thomas Muhr, March 18, 2019.

What is QDPX

ATLAS.ti is a founding member of the Rotterdam Exchange Format Initiative (REFI), the consortium that designs and governs the interoperability standard QDPX. At the heart of the matter, QDPX is an XML-based structured data format that permits not only long-term product storage and product-independent archival of qualitative research projects, but also aims at the exchange of projects between different software products.

ATLAS.ti has long championed the idea of universal exchange of qualitative research data between different applications and was the first manufacturer to introduce a full XML project export in their software as early as 2004. The idea of a universal data export was always a very obvious feature for us, considering the immense value that is added to data that have been processed, analyzed, and structured in the qualitative analysis process.

In the past fifteen years, we have demonstrated through many exemplary applications the additional value the data has when used and re-purposed through direct transformation into visually oriented presentations formats like web pages, printable reports, or ebooks, or other data formats like .rtf, csv, or sql. Despite the wide spectrum of these sample applications, they barely scratch the surface of what further powerful uses will still be possible in the future.

The most immediate benefit of QDPX quite obviously lies in the fact that it enables users of various QDA software products to migrate their research projects between different packages. As more manufacturer join the initiative and implement the new standard, its usefulness to researchers will doubtlessly grow exponentially.

Why is QDPX Great for You?

Find below some general arguments for QDPX and descriptions of some of its practical benefits:

- Because I don't like to be locked in a specific QDAS solution, particularly if there are problems with it; I don't want my data to be held hostage. Interoperability nudges me through the point of sale because I'm less worried that I'll be stuck in something I don't like.
- Now I can move to another software for reasons beyond my control (e.g., funding, new employer, new mandates).
- The data and coding may be the same, but I want to use different types of output/ representation/visualisation that are available in one program but not another.
- I'm working on my dissertation, and I want to use software XY. My committee members, however, are more familiar with software Z. No problem. I'll just transfer my data over at a few key phases, so they can understand and comment on the database, or the output and reports. Moreover, I might be able to demonstrate why software XY was the better choice for my project.
- As a researcher who has become familiar with a particular CAQDAS package as a result of the product that is available to me through a site license at my institution, I need to be able to continue working with my research data in a different product if I move to an institution that has a different site license.
- Funding bodies increasingly look favorably on proposals that involve multiple research partners. This poses issues for users working in different institutions, who are familiar with or have access to different products. As a researcher I therefore need to be able to exchange my analysis between my product and those of my co-researchers. This will significantly facilitate collaborative research. For example, I want to collaborate with teams in three different countries; but they are all experts in a different program. In my grant proposal I want to be able to say that this is no problem and part of the reason I should be funded.
- Each QDAS package has its own particular strengths. Users often need to be able to undertake an analytic task which is not supported by their chosen product, or is enabled in a more appropriate way for their needs in another product. As a researcher being able to move to an alternative product in order to undertake a specific task would facilitate higher quality research.

Find further information on the standard, find more information here.

Exporting a Project in QDPX Format

> From the main menu, select **Project** > **Export** > **REFI-QDA Project (QDPX)**.

Exporting a Project in XML Format

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.

To create an XML version of your project:

> Select **Project** > **Export** > **XML** from the main menu.

What is XML

XML, the eXtensible Markup Language is a powerful standard for information exchange between applications and has been used by ATLAS.ti since release 4.2. In case you don't know what XML is, the short explanation is that XML, similar to HTML, is a document markup language.

XML concentrates on structuring information. Structured information contains both content (actual words, pictures, etc.) plus typically some indication of what role that content plays (for example, text content inside a "heading" has a different meaning from content in a "footnote", content in a "figure caption" differs from content in a "database table", etc.).

Almost all documents have some structure, and a markup language is a mechanism to identify this structure in a document. The XML specification defines a standard way to add mark-up to documents.

XML vs. HTML: A Little Tech Talk

XML is short for eXtensible Markup Language. This is already quite a useful description when you compare it to its "competitor" or predecessor, HTML, short for HyperText Markup Language.

The crucial term is "extensible", NOT "extended". HTML was intended to allow documents and information of considerable complexity to be exchanged across different technologies, operating systems, browsers, etc. It was also meant as a language which describes the logical structure of documents.

If you look at HTML code (right-click and select "View Source" when browsing any web page), you will have a hard time identifying content in the chaotic "noise" produced by tags representing tables, frames, buttons, rulers, fonts, images, indentation, etc.

Both HTML and XML are descendants of a much more powerful (and less comprehensible) language, SGML, the Standard Generalized Markup Language. What XML shares with the latter is that you can define your own new languages, something HTML does not allow for. While HTML is a prescribed language itself, XML is a meta-language for defining new languages.

HTML has no clear separation of content and presentation. With a fixed set of tags there is no way to clearly mark-up document content meaningfully.

If you have ever seen the source code of an HTML coded web page, you can easily recognize two of the main characteristics of XML which makes them distinct from HTML:

The presence of tags (e.g., **<MEMO>**, **<SPEECH TURN>**) which are not available in the fixed set of HTML tags (where new tags would be either proprietary or at least deviations from the standards). The tags used in an XML file represent YOUR data without invalidating any standards! Below, a raw XML file is shown. The absence of presentation (display, layout) related information (tables, fonts, images, rulers, etc.) Below you can see an XML version of an interview section with some added information:

```
<Trans version="1" trans_method="LING22" version_date="990120" audio_filename="au.wav"
xml:lang="DE">
  <Speakers>
    <Speaker id="I" name="Interviewer"/>
    <Speaker id="B" name="Herr Schultz" dialect="bavarian"/>
  </Speakers>
  <Turn speaker="I" tape_pos="2010">
   Ja.
  </Turn>
  <Turn speaker="B" tape_pos="2314">
   Wars doch eigentlich, ja da wars doch
   glaub ich erst ein oder zwei Tage, oder
   vielleicht einen Tag.
  </Turn>
</Trans>
```

If you interested in learning more about XML, there are countless sources online.

Appendix

The following information has been compiled for the appendix:

- System Requirements
- Language Settings
- Service Packs & Patches - Live Update
- Get In Touch
- Useful Resources: Here you find links to the ATLAS.ti website, the Helpdesk, video tutorials, manuals in PDF format to download, the research blog and publications on the use of ATLAS.ti, including an article by Prof. Krippendorff about the implementation of inter-coder agreement in ATLAS.ti.

Language Settings

ATLAS.ti recognized the language or your Operating System and will set the language accordingly. Currently, the following user interface languages are available:

- English
- German
- Spanish
- Portuguese
- Simplified Chinese

For all other OS languages that are not listed above, the default language is English.

System Requirements

The system requirements are:

Hardware: Any Mac with an Intel or Apple Silicon CPU and at least 4GB RAM; SSD strongly recommended. **Operating systems:** macOS 10.15 “Catalina” or higher.

> For better natural language processing results, ATLAS.ti can optionally use bigger machine learning models, which require at least 8 GB of RAM.

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, 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 update ATLAS.ti manually, go to **ATLAS.ti > Check for Updates** in the main menu.

Useful Resources

The ATLAS.ti Welcome Screen contains links to manuals, sample projects and video tutorials. The News sections informs you about current developments, updates that are released, interesting papers we have come across, use cases, and our newsletter.

The ATLAS.ti Website

https://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.

Getting Support

https://support.atlasti.com

From within ATLAS.ti, select **Help > Online Resources / Contact Support**. Or access the Support Center directly via the above URL.

Video Tutorials

If you like to learn via video tutorials, we offer a range of videos covering technical as well as methodological issues.

ATLAS.ti Video Tutorials

Sample Projects

You can download a number of different sample projects from our website. Currently English and Spanish language projects are available. The projects feature different types of data sources:

- text
- PDF
- image
- video
- geo data

.... and different data types:

- interview transcripts
- reports
- online data
- evaluation data
- survey
- literature review

You can use them for yourself to get to know ATLAS.ti, or you can use them for teaching purposes. If available, also the raw data are provided.

PDF Manuals

ATLAS.ti Full Manual and other documentations.

Research Blog

The ATLAS.ti Research Blog plays a very important role in the development and consolidation of the international community of users. Consultants, academics, and researchers publish short and practical articles highlighting functions and procedures with the software, and recommending strategies to successfully incorporate ATLAS.ti into a qualitative data analysis process. We invite you to submit short articles explaining interesting ways of making the best use of ATLAS.ti, as well as describing how you are using it in your own research. To do so, please contact us.

Inter-coder Agreement in ATLAS.ti by Prof. Krippendorff

We have been closely working with Prof. Krippendorff on the implementation to make the original Krippendorff alpha coefficient useful for qualitative data analysis. This for instance required an extension and modification of the underlying mathematical calculation to account for multi-valued coding.. You can download an article written by Prof. Krippendorff about the implementation of the alpha family of coefficients in ATLAS.ti.

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- Woolf,Nicholas H. and Silver, Christina (2018). Qualitative Analysis Using ATLAS.ti: The Five Level QDA Method. New York: Routledge.

Get In Touch

Sending Suggestions

We are interested in reading about your ideas and suggestions you may have. Please feel free to use this as a wish list. While we cannot grant all wishes, knowing about what you need will help us to continuously improve the program to fit your needs.

> From the Help menu, select **Send Feedback**.