QualCoder

QualCoder is free software for qualitative data analysis

1. Edition June 2022

Latest release: https://github.com/ccbogel/QualCoder/releases/tag/3.0

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1 What is QualCoder

QualCoder is free, open source software for qualitative data analysis.

With QualCoder you can code text and images, write journal notes and memos. You can categorise codes into a tree-like hierarchical categorisation scheme. Coding for audio and video can be performed and requires the VLC media player.

Reports can be generated for text coding and for coder comparison using the Cohen's Kappa statistic. A graph displaying codes and categories can be generated to visualise the coding hierarchy. Most reports can be exported as html, open document text, csv or plain text files.

QualCoder is designed to be used as client-based software to be used by one person at a time. (A second coder can use the same project on the same computer, or the project folder can be transferred to the second coder's computer). QualCoder is not designed to be multi-accessed at the same time. QualCoder is not designed to merge two projects into one.

QualCoder is written in python 3 using Qt6 for the graphical interface. A Sqlite database is used to store the coding data.

The most current QualCoder is available from https://github.com/ccbogel/QualCoder. Releases are available from: https://github.com/ccbogel/QualCoder/releases These contain source code and Linux Debian packages (you still need to install some modules using the terminal). There is also a wordpress site at https://qualcoder.wordpress.com/. The minimum supported python version is 3.6.The minimum recommended screen size is 1024 x 600 pixels.

1.1 Why use QualCoder?

Qualcoder is free of charge. Many qualitative analysis software requiring expensive one-time fees or monthly subscriptions. Not everyone can afford expensive fees.

QualCoder is easy to use. It has all you need to perform qualitative analysis without the complicated interfaces of some alternatives.

QualCoder works offline. Internet is not always available and QualCoder does not require internet to work.

QualCoder is not tied to a computer. If you change workplace you do not have to worry about being tied to your former workplace's license or to buy a new license. QualCoder license allows you to use the software regardless of where you work or on what computer it is installed on.

QualCoder is multi-platform. It runs on Linux, Windows and Mac, this means that you do not have to worry if you change operating systems, and it also means you can collaborate with colleagues on different platforms.

QualCoder relies on the community. If you find a bug or have a feature request or feedback, write it on QualCoder's page on github https://github.com/ccbogel/QualCoder.

QualCoder is always improving. QualCoder is actively developed meaning that newer, improved versions are released with improvements.

QualCoder supports open standards. QualCoder aims to support the REFI-QDA Standard, see https://www.qdasoftware.org/ You may exchange codebooks and projects with your colleagues even if they do not use QualCoder, as long as the software they use supports the REFI-QDA Standard. It means that you do not risk your data being unavailable. REFI-QDA Project is still experimental so there may be bugs. Further testing particularly for audio and video exports and imports and relatively-linked files is needed.

QualCoder can be modified. You can modify and adapt QualCoder to your needs, or if you do not how you ask someone to do it for you, as long as you release your changes to everyone. This also means you can copy the software and give it to your colleagues or students free of charge.

1.2 Collaboration

I get a few questions on how project collaboration works, so I have added this information upfront. The first thing is that QualCoder is not set up to have multiple coders simultaneously working on project. One person at a time must open the project and use the project.

The QualCoder project folder is a folder with a .qda ending. This folder contains sub-folders of files and a sqlite database file. You can zip the project folder and email (or transfer via removable media) the zipped project to another collaborator for them to work on the project. They unzip the folder, then open the project using QualCoder.

You can have a second coder use the same project folder on the same computer, change the name in setting to the new coder's name (enter a new coder name and click the Apply button, or select from the drop down list) so they can work on the project under their name, especially if you need to do a coder comparison.

Please check the curernt coder's name in Files>Settings before doing any work. Codings in code text, code images, code A/V will only show the coded segments of the currently selected coder in Settings. So if **nothing** shows, change the coder name using the drop down box in Settings.

The coder name is 'default' when first using QualCoder. When opening another existing project, please make sure the coder name is set to the name you want to use by checking and updating the Settings before you do work on your project. When you are in any of the coding sections (coding text, images or A/V).

Do not use REFi-QDA Project export as a routine approach for collaboration when all coders are using QualCoder. Use the above approach instead. If you need to use open a project in different software (e.g. Taguette, NVivo, Atlas.ti, MAXQDA, Dedoose, Quirkos), only then you should use the REFI-QDA Project export. It is important to recognise that project features can be lost when

transferring project between qualitative software using the REFI-QDA Project export.

2 Downloading files and dependencies

Download the latest QualCoder from GitHub: https://github.com/ccbogel/QualCoder or download the most recent release https://github.com/ccbogel/QualCoder/releases/tag/3.0. Unzip the folder. The Examples folder contains some example files which can be loaded into a test QualCoder project.

2.1 Preparatory Downloads

Installation instructions are for the most current release. You will need to have a python 3.6 or newer version installed and a 64 bit VLC player installed. To use the speech to text function, you will need to install ffmpeg and use an online service.

2.1.1 Microsoft Windows

The 3.0 Release contains an exe file (created on Windows 10, 64 bit). Download and double-click to run. This exe may work on older Windows versions.

Manual install:

It is recommended you install into a virtual environment e.g. using venv.

1. Download the QualCoder software from: https://github.com/ccbogel/QualCoder. This is the newest, but not yet officially released code. Alternatively, choose the most recent release. Click the green button "Code", and then "Download ZIP". Then, unpack the file in a selected place (e.g. desktop).

2. Download and install the Python programming language. The minimum version for QualCoder is 3.6. Python3. Download the file (at the bottom of the web site) "Windows installer (64-bit)" IMPORTANT: in the first window of the installation mark the option "Add Python to PATH"

3. Install python modules from command. Type "cmd" in the Windows Start search engine, and click on the black software "cmd.exe" - the command console for Windows. In the console type or paste, using the right-click context menu (ctrl+v does not work) the following:

```
py -m pip install wheel pyqt6 lxml Pillow ebooklib ply chardet pandas plotly
pdfminer.six openpyxl pydub SpeechRecognition
```

Wait, until all modules are installed .

4. Build and install Qualcoder, from the downloaded folder type

```
py setup.py install
```

The py command uses the most recent installed version of python. You can use a specific version

on your Windows, if you have many python versions installed, e.g. `py -3.9` See discussion here: [Difference between py and python](#)

5. Run QualCoder from cmd.exe Move to the QualCoder-master folder, then type

```
py -m qualcoder
```

2.1.2 Debian/Ubuntu Linux

There is a binary 'exe' made with pyinstaller on Ubuntu 20.04 in the 3.0 release.

It is best to run QualCoder inside a python virtual environment, so that the system installed python modules do not clash and cause problems.

Install venv. I am using python 3.9 you can choose another recent version if you prefer.

```
sudo apt install python3.9-venv
```

Download and unzip the Qualcoder folder.

Open a terminal and move (cd) into that folder. You should be inside the QualCoder-master folder or if using a release, e.g. the Qualcoder-3.0 folder. Inside the QualCoder-master folder:

```
python3.9 -m venv qualcoder
```

Activate venv, this changes the command prompt display showing brackets: (qualcoder) Note: To exit venv type: `deactivate`

```
source qualcoder/bin/activate
```

Install the required python modules.

```
pip install lxml ply six pdfminer chardet pyqt6 pandas pillow
plotly pdfminer.six openpyxl ebooklib pydub SpeechRecognition
```

To install QualCoder, type the following, the dot is important:

```
python3 -m pip install .
```

You may get a warning which can be ignored: WARNING: Building wheel for Qualcoder failed

To run type:

```
qualcoder
```

After all this is done, you can `deactivate` to exit the virtual environment. At any time to start QualCoder in the virtual environment, cd to the Qualcoder-master folder (or Qualcoder-3.0 release

folder), then type:

```
source qualcoder/bin/activate
```

Then type:

```
qualcoder
```

2.1.3   Arch/Manjaro Linux

Also consider using a virtual environment. The below installation instructions may affect system installed python modules.

1. Install modules from the command line

```
sudo pacman -S python python-chardet python-lxml python-openpyxl python-pdfminer
python-pandas python-pillow python-ply python-pyqt6 python-pip
```

2. Install additional modules

```
sudo python3 -m pip install ebooklib plotly pydub SpeechRecognition
```

If success, all requirements are satisfied.

3. Build and install QualCoder, from the downloaded folder type

```
sudo python3 setup.py install
```

4. To run type

```
qualcoder
```

Or install from AUR:

```
yay -S qualcoder
```

2.1.4   Fedora/CentOS/RHEL Linuxes

Also consider using a virtual environment.. The below installation instructions may affect system installed python modules.

Retrieve the current package code from this repository

```
git clone https://github.com/ccbogel/QualCoder.git
```
Install dependencies

```
sudo dnf install python3-pip python3-lxml python3-ply python3-six python3-
chardet python3-qt6 python3-pillow python3-pandas python3-plotly
```

QualCoder uses an Ebook library that you can currently install via a work-around, specified at
https://github.com/ccbogel/QualCoder/issues/72#issuecomment-695962784

From the QualCoder-release folder:

```
sudo python3 setup.py install
```

The UNTESTED `install_fedora.sh` should install the dependencies and a desktop start icon
for Fedora. The script is for python version 3.8.

To run:

cd to the QualCoder-release folder then run:

```
python3 -m qualcoder
```

2.1.5 Mac OS

Instructions may need updating. Install Python3 and VLC.

Download Qualcoder-master Zip file and copy it into /Applications.

In a Terminal run these commands to use python 3.9 (you can also use newer versions):

```
curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py python3 --version
```

Select 3.9 as an answer

```
python3 get-pip.py
cd /usr/local/bin
sudo ln -s ../../../Library/Frameworks/Python.framework/Versions/3.9/bin/pip pip
pip install pyserial
pip install pyqt6 lxml pillow six ebooklib ply chardet pdfminer.six openpyxl
pydub SpeechRecognition pandas plotly
/bin/bash -c "$(curl -fsSL
https://raw.githubusercontent.com/Homebrew/install/master/install.sh)"
brew install qpdf
```

From the QualCoder-release folder:

```
sudo python3 setup.py install
```

To run QualCoder

```
cd "/Applications/QualCoder-release" python3 -m qualcoder
```

Another option to run Qualcoder is shown here www.maketecheasier.com/run-python-script-in-mac/

 This means you can right-click on the __main__.py file and open with --> python launcher. You
can make an alias to the file and place it on your desktop.

3 Starting QualCoder

3.1 Ubuntu / Debian

If installed outside of a virtual environment. To run, from the terminal type:

```
qualcoder
```

To run form an existing virtual environment. cd to the QualCoder folder, then type:
```
source qualcoder/bin/activate
```

Then type:

```
qualcoder
```

3.2 Windows

Double click the exe file.

Alternatively, using the command prompt, move (cd) to the QualCoder-release folder run:

```
py -m qualcoder
```

3.3 Mac OS

Using the terminal prompt, move to the QualCoder-release folder and type:

```
python -m qualcoder
```

or

```
python3 -m qualcoder
```

3.4 Backups

QualCoder has several backup options that can be changed in the settings. QualCoder can make a backup of a project every time the project is opened. Several date and hour stamped backups are created, with the oldest being deleted if there are further backups created. Backups can be restricted to only non-audio/video files, for faster smaller but less complete backups. The number of backups can be set in the settings. You can also copy and remate the project folder and store elsewhere for further use or backups.

Another option is to not backup the project every time it is opened. However, I recommend that you make a backup before doing any substantial changes, such as reorganising codes and categories.

4 How to use

There are a few sample files in the Examples folder. These can be used to test importing files of different document formats and of importing an image. There are also example files to test importing case attributes, and for importing a survey.

4.1 Settings

The settings dialog allows you to change several features including language, coder name and font type and font size. Multiple coders can code the same text. A new coder name can be entered in the text box. Then press Apply button to use this new coder name. Alternatively, choose an existing coder from the drop down box.

The default language of QualCoder is English. Currently French, German, Italian, Portuguese, Spanish are alternative languages. These languages have not been thoroughly reviewed for accuracy of translations. When changing a language, close then reopen QualCoder for the change to occur.

Checking the Show IDs box displays the numeric IDs for codes files cases and more. These IDs may be useful when writing sql queries.

For transcribing audio and video, The time format and bracket type can be selected.

Project backup can be set to automatically backup every hour, or no backup. QualCoder keeping the most recent five backups with a date and hour time stamp. The backup name is: *projectname_BKP_yyyymmdd_hh.qda* Where *hh* is 24 hour time. This also means multiple backups are not done within an hour. So a new backup cannot overwrite another backup created within the same hour. Up to five backups are kept, older ones are deleted.

Rename or move to another location particular backups that you need to keep. When the backups are set, an additional option is to choose to backup the audio/video files. For completeness of backups it is recommended to back up audio and video, however this may slow down opening of the software if you have many large files.

The default project directory is where many file operations will default to, for export or looking to import files.
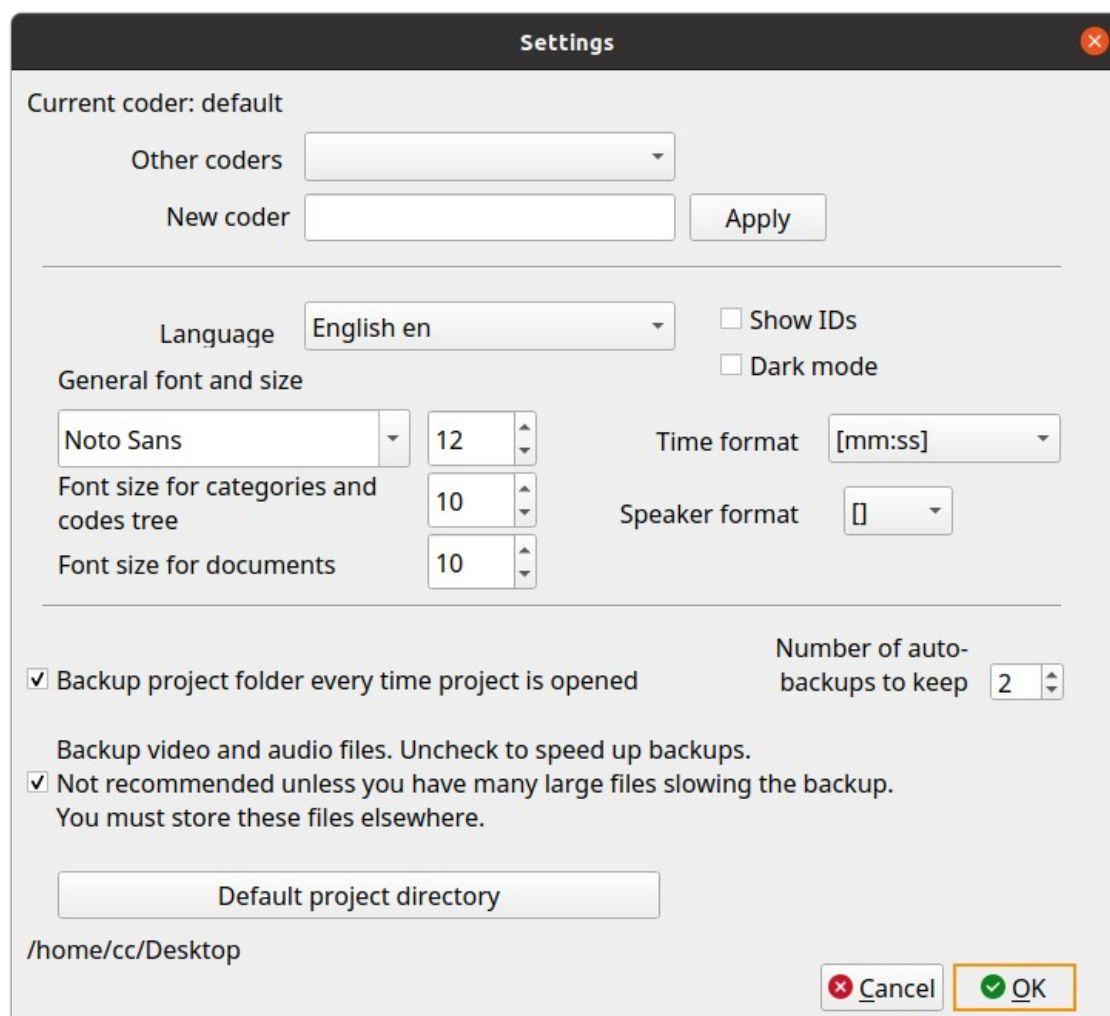
Figure 1: Settings dialog

4.2 Create a new project

Create a new project under the 'Project' menu, call it test. The project will be saved as *test.qda*. Test.qda is actually a folder containing subfolders which hold the database and other files. Additionally, in your home folder QualCoder will create a .qualcoder folder with a QualCoder.log file for logging events, a config.ini file which will contain the current coder's name, preferred fonts and a preferred working directory. There will also be a recent_projects.txt file which stores the most recdntly opened file. When opening QualCoder the most recent file will automatically be opened.

Under the *Project* menu click on *Project memo*. This is a memo about your project. Type "A test QDA project" and click the OK button.

The main window displays settings and the current project in the Action log, with a menu bar at the top. It several tabs used for coding, managing files/journals/cases, reports and actions performed.
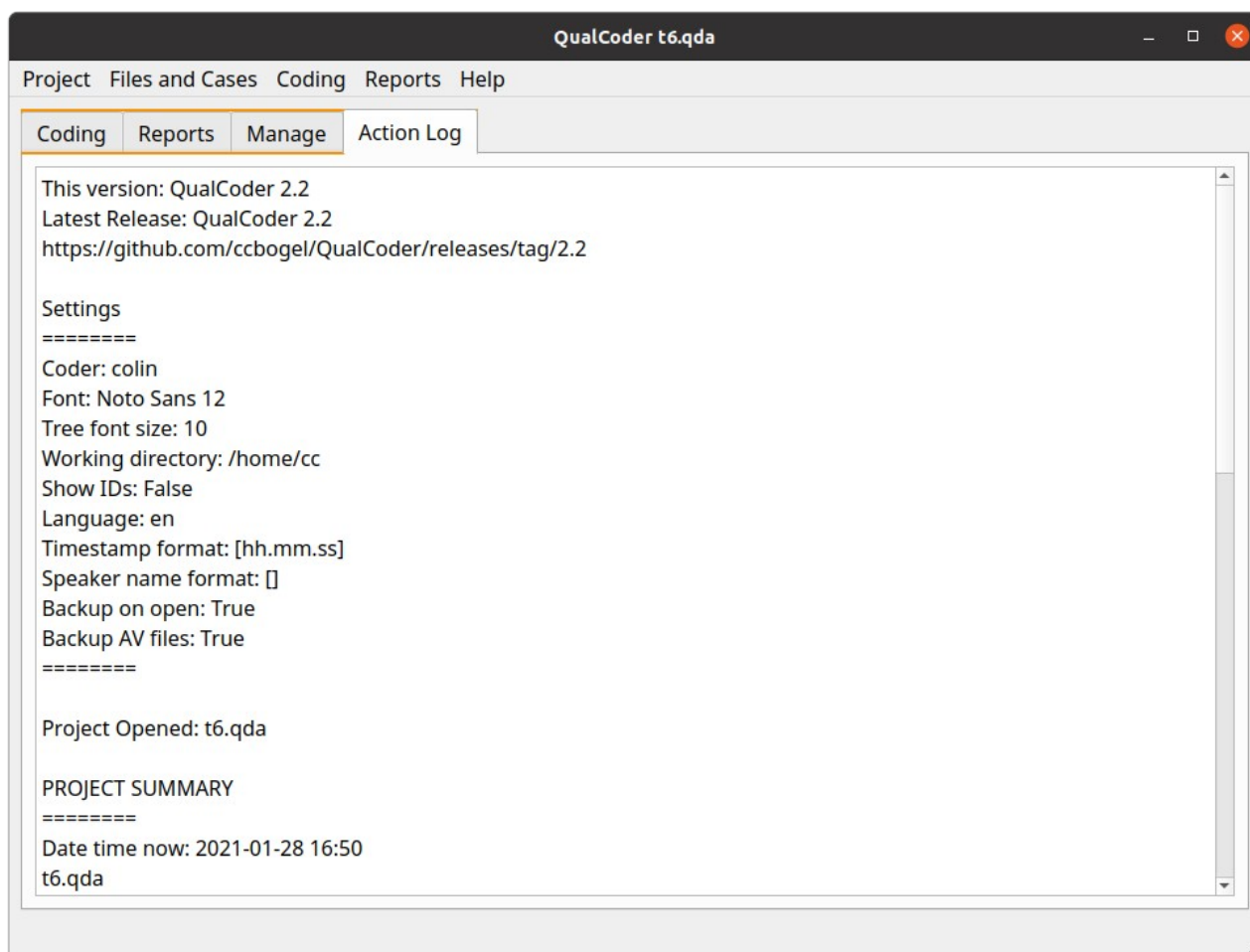
Figure 2: Main screen showing information and the tabs

4.3 Files and Cases Menu

4.3.1 Manage Files

You will usually want to load text files into QualCoder prior to coding. You can import text from plain text documents (txt), docx, odt, html, htm, md, epub and pdf documents. If the file format is not recognised, QualCoder will try to import as text. Html text is loaded but may need further editing to suit, as formatting will not match the original page. You can manually enter text from within QualCoder. Image files in the following formats can be imported: jpg, jpeg and png.

Pdf importing can be slow and may need editing. Large Pdf files take a long time to import. QualCoder extracts text from the Pdf files using pdfminer.six, but you may choose to use another extraction program for the plain text, suggestions include: www.pdf2go.com/ www.pdfmate.com/pdf-converter-free.html https://pandoc.org/

Video (mov, mp4, wmv formats) and audio files (wav, mp3, m4a formats) can be imported. Loading an audio or video file will also automatically create a blank text transcript file. This file will have the same name as the audio or video file, but have a '.txt' suffix. Initially, this text

transcription will be empty. You can transcribe the file via viewing the audio or video in the Manage Files dialog. You can also get the file professionally transcribed and copy and paste the text into the transcribed text file.

Files can be imported into the project folder, or they can be external to the project folder. External files are linked to. Linked files are shown with a small red link in the file icon. If an externally linked file is moved or deleted, QualCoder will warn you that there is a bad link when the QualCoder project is opened. Links to text files are less important, as the plain text is always imported. Links to images, audio and video need to be correct to work.

Transcript text entries are created within the database and associated with and audio or video file. These cannot be turned into externally linked files. However, you can export the text to a text file. A text transcript is denoted with an icon of a black T with a red play arrow.
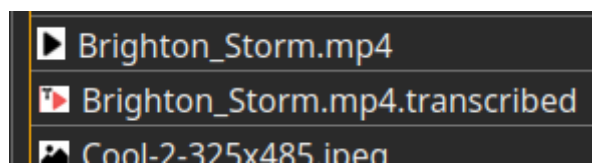

Figure 3: Icon identifying a text transcript

A right-click context menu allows you to view, export, delete or rename a file. The rename option only affects the database stored name of the file. The context menu also allow you to import an externally linked file into the QualCoder project folder. It also allows you to export an internal file from the project folder to an external folder location. The small red link in the icon indicated the file is external to the project folder. The menu also allow you to re-order the files according to alphabet, date, and file-type and when right clicking in the name or date columns.

The icons replicate many of these functions. The red icon is for deleting multiple files. The blue plus icon is for creating attributes. The pencil icon is to create a text file. There is no option available to rename the files. It is best to rename files before they are incorporated into the project.
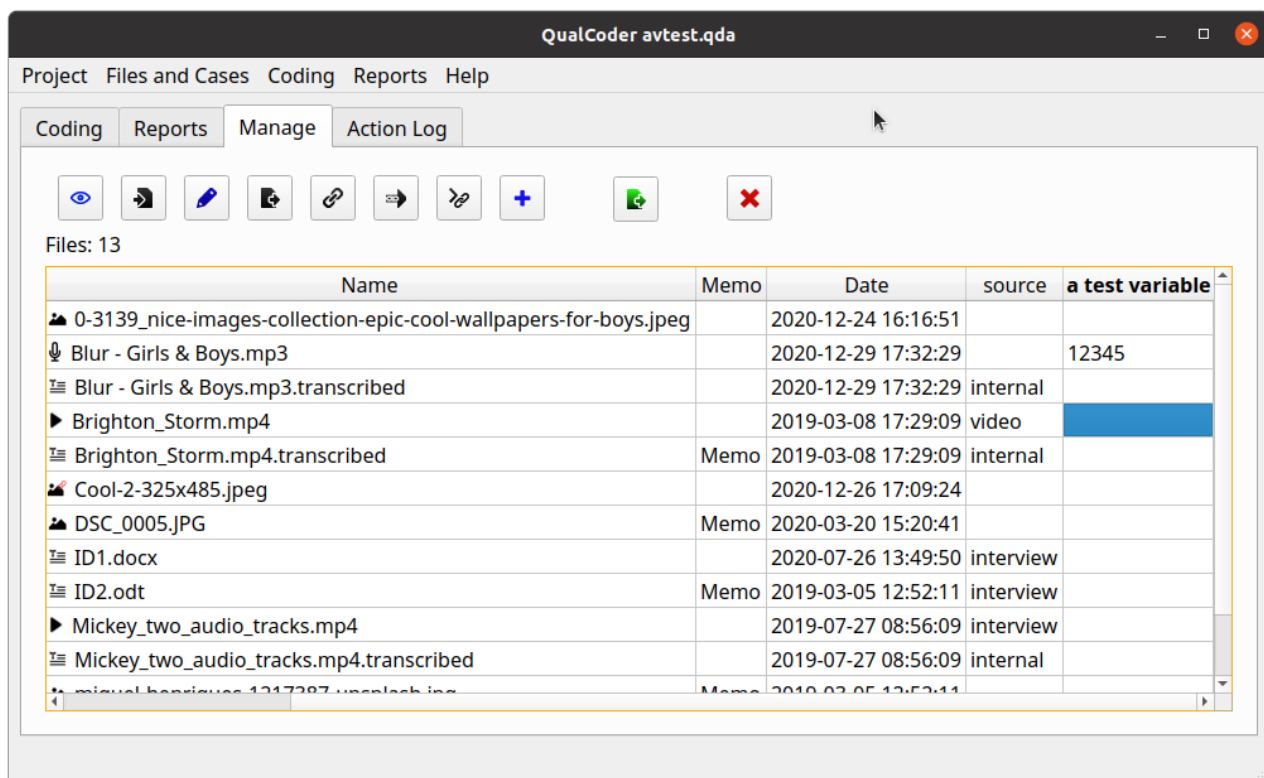
Figure 4: File management

Attributes

Attributes are variables that can be used to describe or classify the files. These can be added here or through the Manage Attributes menu option. You can show only selected attribute types, if the right-click occurs in an attribute column, shown below. Attributes for files can be exported using the green export button.

Figure 5: Right click on an attribute to show only those files that match

Files larger than 2 Gigabytes are not stored internally. They will always be linked externally to the project.

4.3.2 Text file creation and editing

Text files can be edited providing no coding or annotations or case assignment have been performed with the text file. Copying and pasting text from elsewhere (e.g. web page) may show formatting

from the copy/paste (e.g. bold, italic, foreground and background colours) until the text file is re-opened.

If the file has already had some coding or annotations assigned, the sections of the text file will be shown underlined in red.

Text can be edited even after the text is coded or annotated or assigned (fully or partially) to a case. Sections of the text file or audio/video transcribed file will have sections of text underlined in green (case assigned), yellow (annotation) or red (coded) by ALL coders.

You can select text that is not underlined and copy/replace without problems. You can click on a position (without selecting text) to then type, delete, or paste text. This can occur in underlined (coded, annotated, case-assigned) or not underlined (not coded/annotated/case-assigned) text locations. You will see the underlines shift as text is added or removed.

There are some limitations: It is best to avoid selecting sections of text to delete (or to type or paste over). This is particularly an issue if any of those sections have been underlined (coded, annotated, case-assigned). It may also be an The reason is that positions of the underlying codes/annotations/case-assigned may not correctly match as intended. If you have made a change that you think has affected these coded/annotated/case-assigned positions badly, exit the text editing window by pressing the Cancel button. The edits occur within the database stored text. The original text file is not changed.

4.3.3 Viewing audio and video

You can open an audio or video file to view. The video file might contain multiple audio tracks. There is a drop down box that allows you to choose another audio track. If you have ffmpeg installed a waveform or spectrogram (Ctrl I, Ctrl U) is displayed. The waveform/spectrogram has been tested only on Ubuntu so far.

Viewing opens two dialogs, one for viewing the video and one for the controls. A transcribed text will have the same name as the video file initially, unless it is renamed, but with a '.txt' suffix. The transcribed text file is stored within the sqlite database, but can be exported to a text file. Different text files can be assigned as the transcription file to an audio or video file, from right-click in Manage Files.

There are controls under the transcribed text, so that you can search forward or backward for specific text.
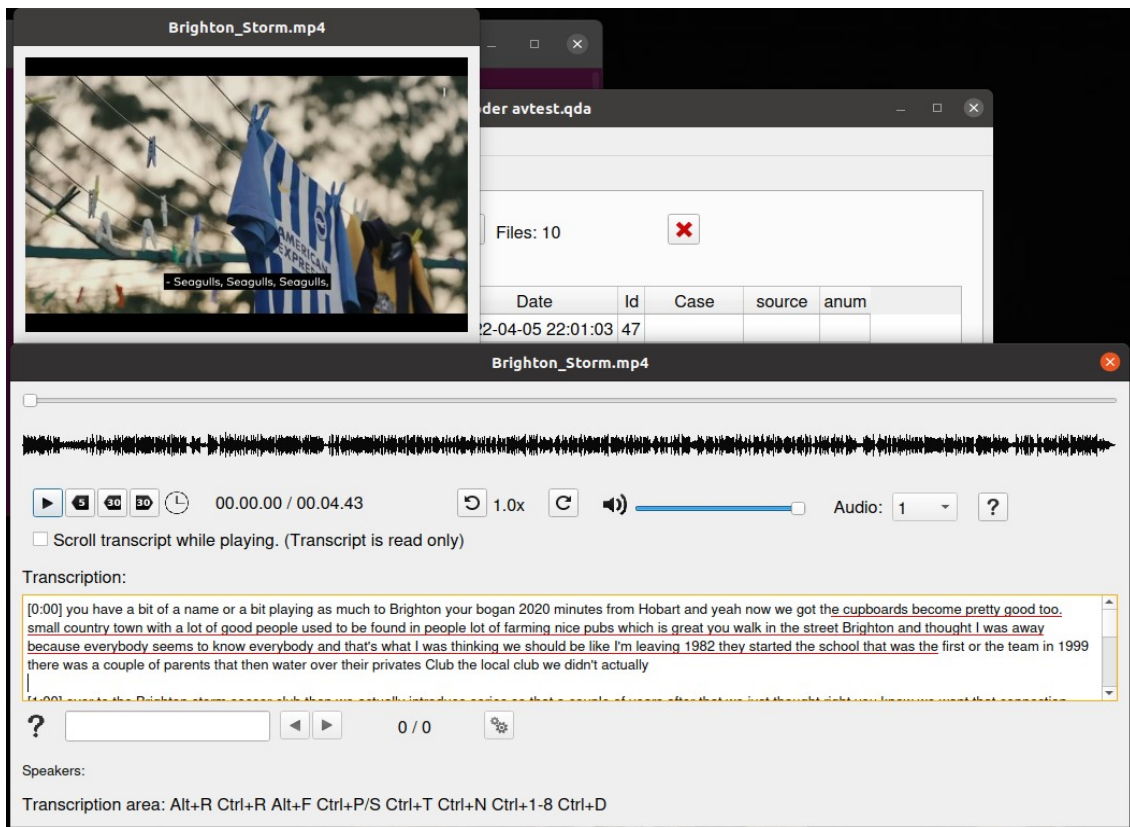
Figure 6: Viewing a video file with the transcription below

If you have a .srt file (a translation file that is read by VLC) you can place this alongside the video inside the project video folder, shown below. When the video is played, the translation wording will be shown as subtitles in the video. You can open the .srt file in a text editor, and copy and paste this into the video.mp4.transcribed text file. Then this text will be shown as the transcription for the video.
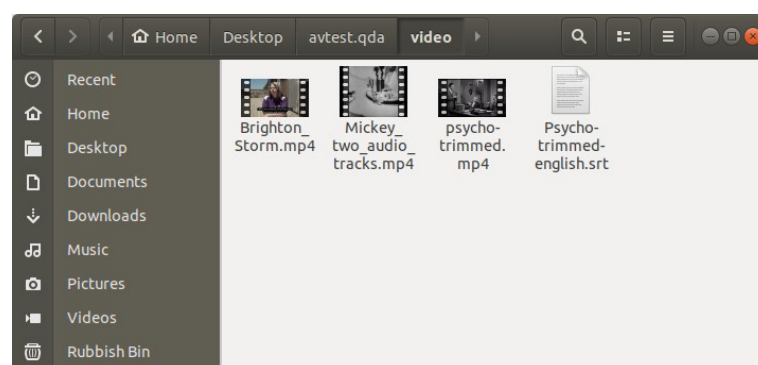

Figure 7: srt file location

4.3.4   Transcribing audio and video

To transcribe open the Mange files menu option, then view the audio or video file. The audio/video

will load and there will be a text area to enter transcribed text. QualCoder does not have an automated audio to text feature. Other services such as otter.ai may assist you.

Transcriptions may contain timestamps indicating when the text is being pronounced during the video. The following formats are recognised by QualCoder, where SSS are milliseconds:

[hh:mm:ss], {hh:mm:ss}, [mm:ss], [hh.mm.ss], [mm.ss], #hh:mm:ss.SSS#

hh:mm:ss,SSS --> hh:mm:ss,SSS

Transcriptions may contain speaker names indicating who is speaking. Speaker names are bracketed in this format: [name] or {name}. Dots '.' and colons ':' cannot be used in speaker names.

Manually transcribing audio and video is helped with some keyboard shortcuts. Transcribing and adding or editing text can only occur if the existing text has no codes or annotations. Copying and pasting text from elsewhere (e.g. web page) may show formatting from the copy/paste (e.g. bold, italic, foreground and background colours) until the text file is re-opened.

The shortcuts available are:

Ctrl R   Rewind 5 seconds

Alt R   Rewind 30 seconds

Alt F   Forward 30 seconds

Ctrl S or Ctrl P Stop/Start toggle audio/video. From stop to play will rewind 2 seconds.

Ctrl T   Insert timestamp in this format: [hh.mm.ss]

Ctrl +N   Add a speaker name. This also pauses the audio/video.

Ctrl D   Delete one or more speaker names.

Ctrl 1 to 8   Insert speaker name in this format: [name]

Ctrl Shift > Increase play rate up to 2 times

Ctrl Shift < Decrease play rate down to 0.1

Speech to text

A speech to text function is included. The ffmpeg software must be installed for this to work. When an audio or video file is added to the QualCoder project an empty transcription file is created. The cogs button activate this function, but only if there is no text entered into the transcription file.
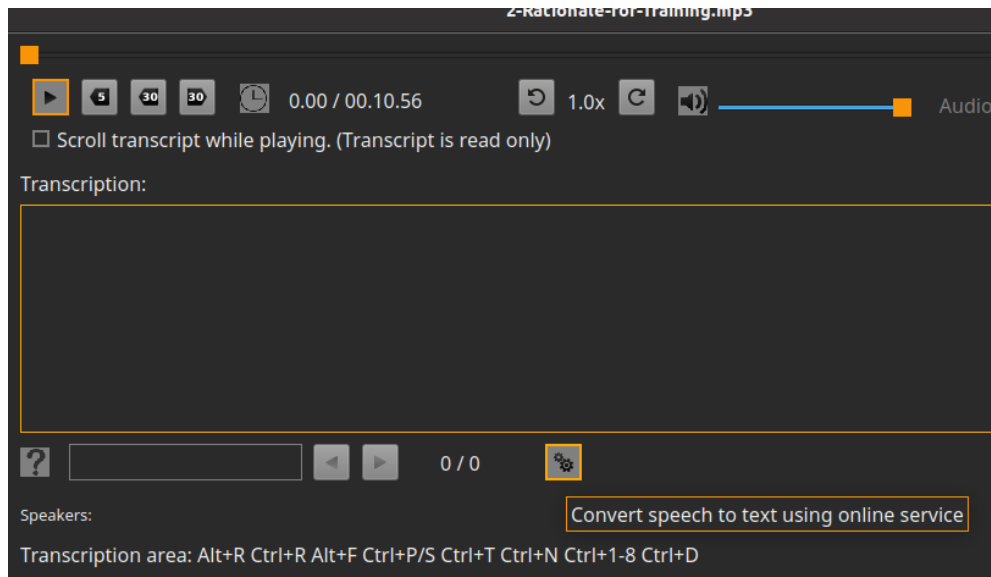
Figure 8: Speech to Text cogs button

Speech to text provides several online third-party services. Most require sign up. Google does not but is limited to 50 requests of the service per day (e.g. 50 x 1 minute audio segments).

QualCoder converts the audio file into 30 or 60 second chunks and adds a timestamp for each of these. Each chunk is provided to the online service which then takes a few second to convert to text.

Language options are entered into the Language box, or might be configured when you signed up to a service such as Houndify or Wit.ai. Language options are entered as text in format like: en-US, fr-FR, de-DE, es-ES, pt-PT, pt-BR.
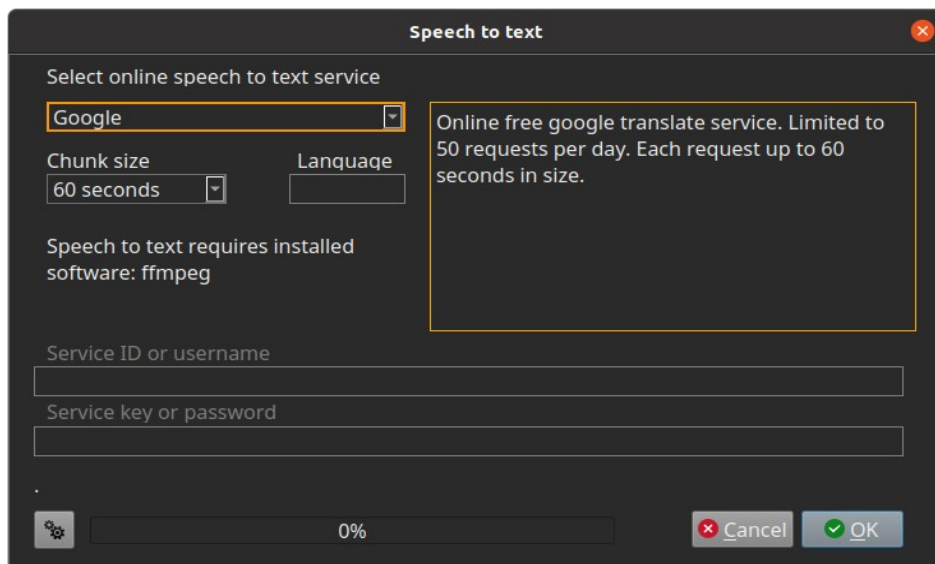

Figure 9: Speech to text dialog

Services listed are Google, Microsoft Bing Voice Recognition, Wit.ai, Houndify, IBM Speech. Most services require a service key or password and some need an ID or username.

4.3.5 Manage Cases

A case is typically a source of information and can be associated with one or more files. A case can be classified using attributes. An example case may be a person who has been interviewed (an audio or text interview file) and have published works (e.g. blog posts as files). The person can be assigned attributes such as their location, gender or occupation.

The *Manage Cases* dialog lists the cases in a table. On the right had side the text of a case is displayed. The number of files associated with a case is shown. Click on the files cell in the table to add or changes files associated with a case. This displays the case file manager dialog, described below.

Cases are useful for seeing text and imaged linked to particular cases and for assigning attributes such as age and gender to interview participants. You can rename a case by double-clicking on a case name.

Practical example: Add the three students (or cases) here by clicking the *Add case* button. Call each student: ID1, ID2 and ID3.

If you have already loaded the example id1 and id2 files from the examples folder into your QualCoder project. You can then add each student's file to each student. Click on the cell in the Files column for case ID 1 for example. This opens the case file manager dialog.

The number of files associated with each case is shown in the Files column. Clicking on the files column, or selecting a case and clicking the *Case file manager* icon opens the case file manager where files can be linked to cases.
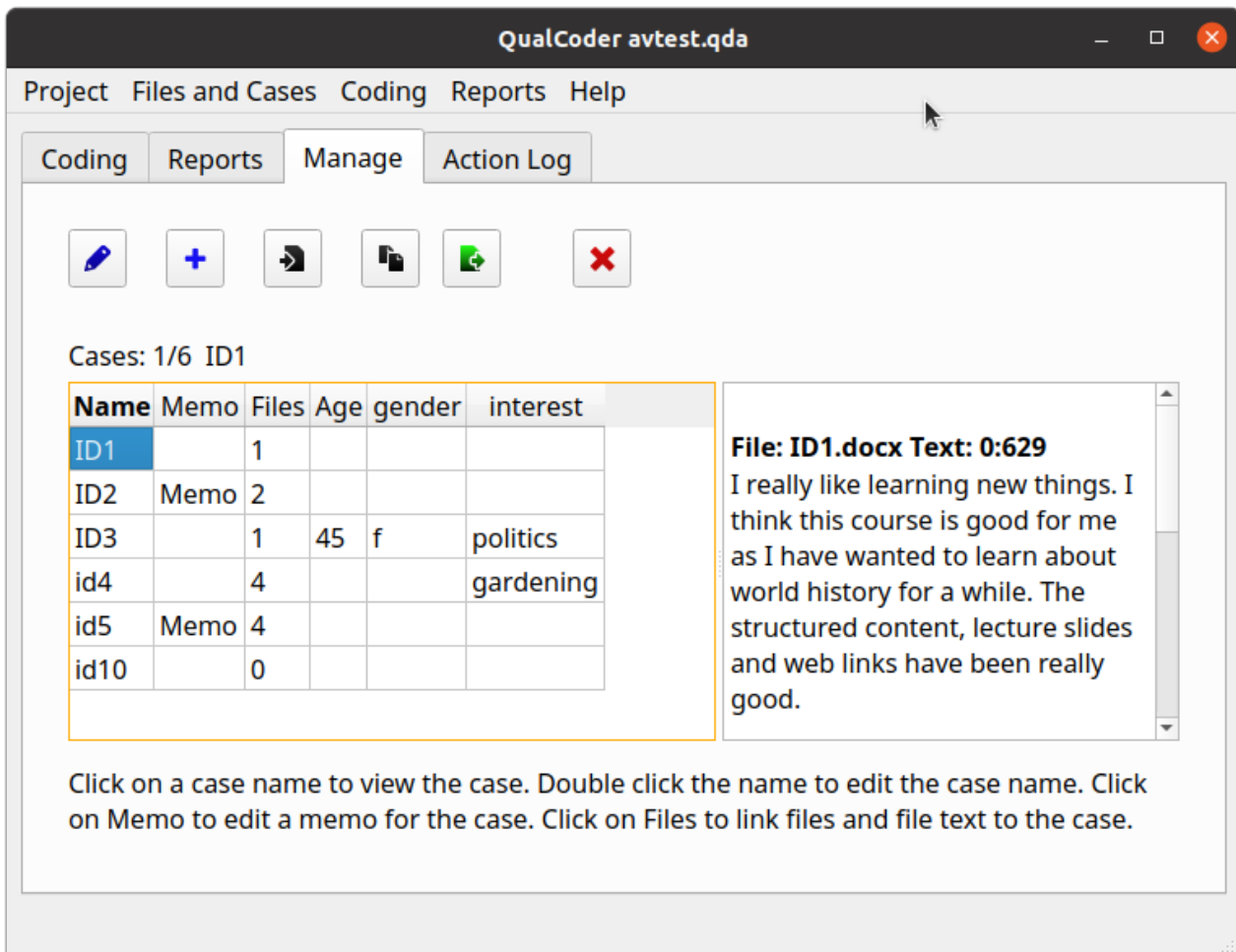
Figure 10: Case management

4.3.6 Case file manager

The case file manager links all file types to each case.

For example, in the *case file manager*, click on a case, say ID3, then click *Add selected files to case* button. Select one or more files in the files list. Add the file(s) to the case. For example add the miguel-henriques.jpg to ID3. You can remove files and view the files associated with the case. You will see file text will be underlined in red which indicates this text is associated with this case.
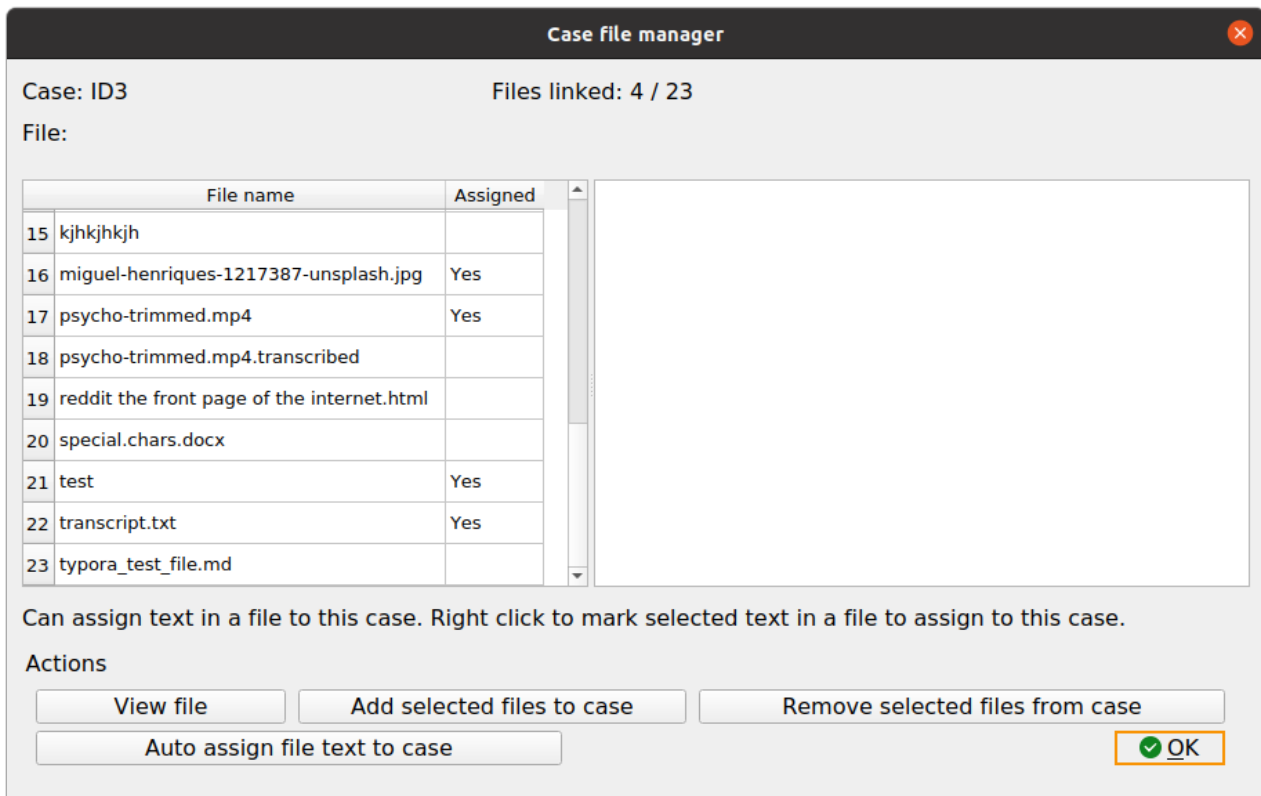
Figure 11: Case files manager

You can select sections of a text file to assign to a case. For example, paragraphs within a focus group transcript. You can also select a case text file, manually highlight text, and right-click to mark (or assign) the text to the case. You can also automatically assign sections of text to a case shown in an example below.

Now open the transcript.txt file. Notice the transcript begins with a student id inside square brackets [ ]. Try automatically assigning text to ID1 by selecting case ID1 then clicking the *Auto assign file text* button. You will be asked which file or files to assign the case to. Select *transcript.txt* from the list. Next you need to enter the start and end marks. The start mark will be '[id1]' and the end mark will be '[', note this is case sensitive so that is why you use the lower case here. Now select the case ID1 and see the assigned text.
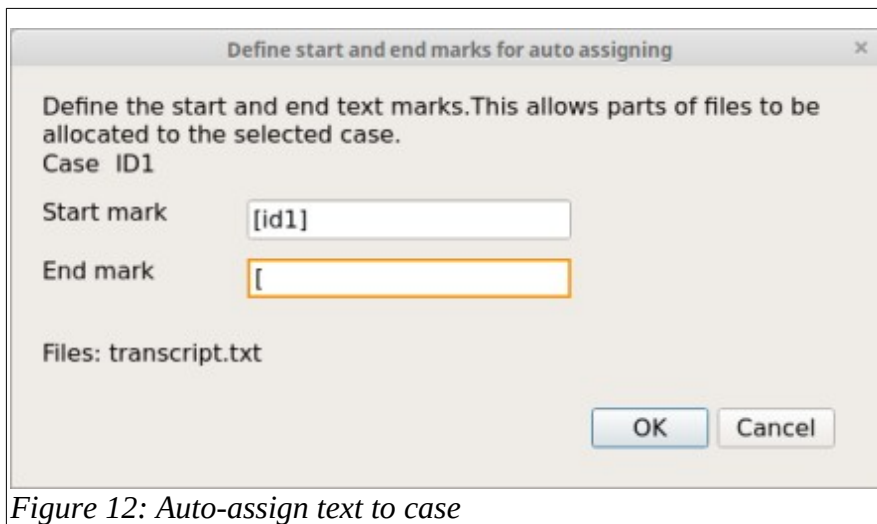
Figure 12: Auto-assign text to case

 Case attributes

Importing attributes for the cases. You can import attributes from a csv or Microsoft xlsx file. The first row must contain the attribute headings. The first column must contain matching case names (for this example: ID1, ID2, ID3). Note that this is case sensitive. Open the Examples folder has a cases.csv and cases.xlsx file.

You will then need to link any files and file text to each case using the Case-File manager..

4.3.7   Attributes

Attributes are variables associated with files or cases. They can be useful to add context to the text analysis. Open the *Manage Attributes* dialog. You can add, delete, rename and add memo notes to attributes. Attributes are stored as text, but numeric attributes are generally interpreted as numbers. Right click on a numeric variable and you can change it to character.

 However, if you are running SQL queries you may need to cast the numeric attribute to an Integer or Real: *cast(my_var as integer).*
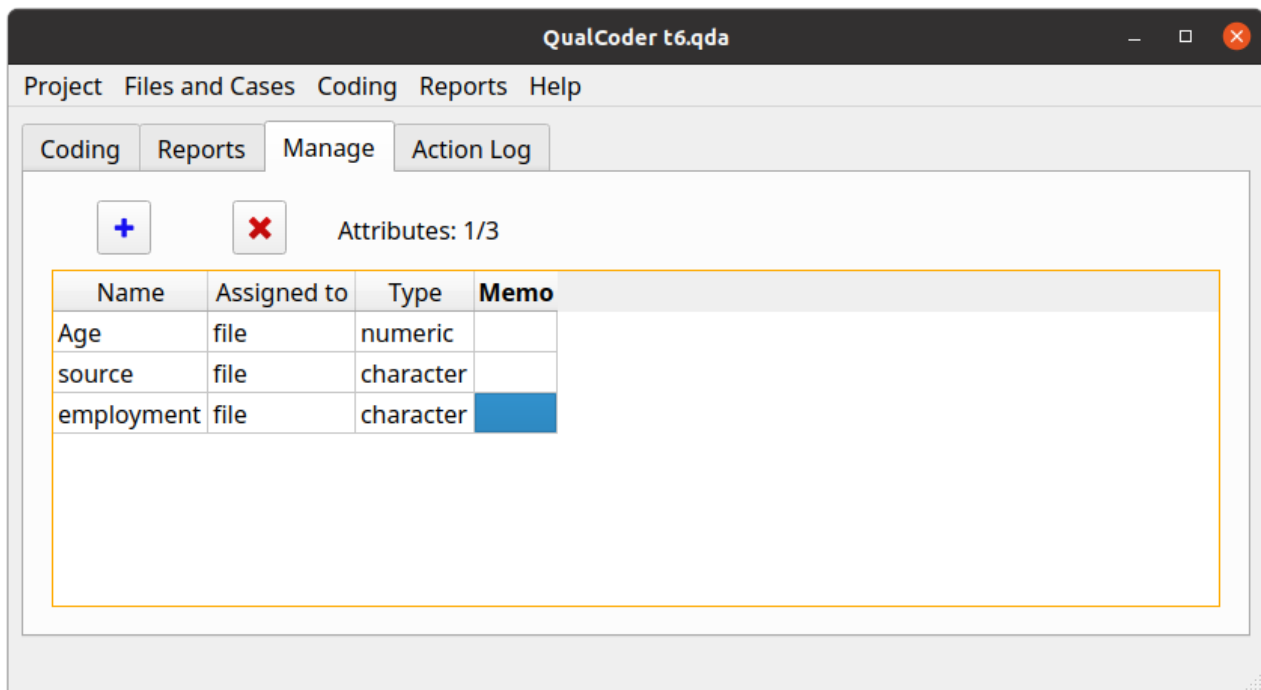
Figure 13: Attribute management

It is not the intention for QualCoder to perform statistical analyses of the attributes. Use dedicated statistical software such as R https://www.r-project.org/

4.3.8   Journals

You can record your thoughts when coding your data in journals. Make use of these to develop ideas and themes.

Journals can be created, deleted, exported and re-named. Journal export also has an option to collate and export all journals as a single text file.

There is a search text function (minimum 3 letters) to search within the current journal or across all journals.

The current journal (journal with the most current date) can be opened in the right-hand side pane of the code text window. This allows journal entry to be updated as coding occurs.
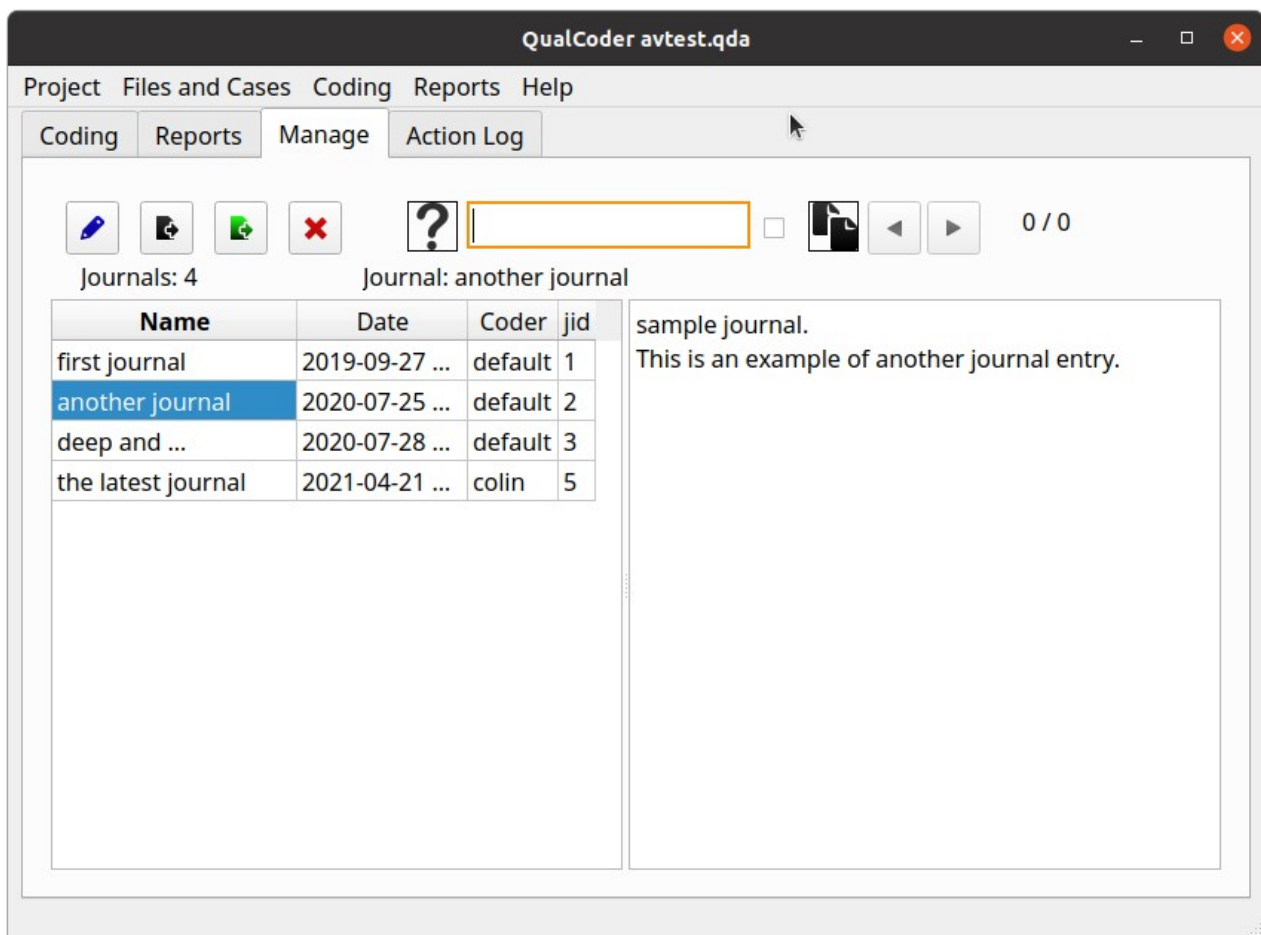
Figure 14: Journal management

4.3.9 Manage bad links to files

If your project contains externally linked files, these files can be moved, renamed, or deleted. The Mange bad links window allows you to edit the existing link and replace it with a new one, by finding the correct file and it's location. Bad links do affect images, audio and video files. Text is not impacted unless you need to review the original text document. This is because plain text is imported into the QualCoder database.

If you are importing an REFI-QDA project with external links, you will need to update the links to files using this function.

The function may take longer to open, as it will search through your user folders to find matching file names and offer them as suggested alternatives.

4.4 Coding menu

4.4.1 Categories and codes

Categories are used to organise codes. Categories are organised hierarchically in a tree structure. You can move codes into categories and move categories into larger categories. You can move

categories and codes out of their current position. Codes and categories can be merged by dropping a code onto a code or a category onto a category. Categories and codes can be assigned memos. Right-click on a category or code to rename. Right click on a code to change the color or to move the code to another category.

To reduce the number of codes shown in the code tree. In the coding windows (code text, code, a/v or code image), right-click on the code tree and select *Show codes like* from the menu. Then enter text in the text box. This will then only show codes that contain that text. Enter nothing into the text box and press OK to show all codes again.

In all coding panes, you can select a code and view the coded portions that match. The right-click menu option 'Show coded files' is to show coded text and media for the selected code. Clicking on the coded portion heading will open another window to show that coding in context of the original file.
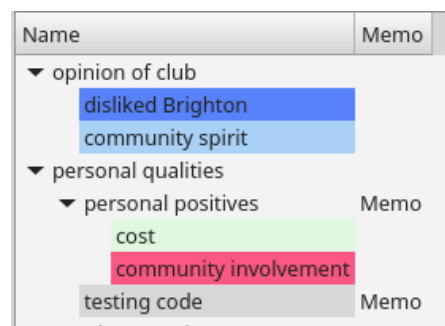

Figure 15: Categories and codes

4.4.2   Coding text

Select *Code text* from the *Coding* menu. This is the central dialog for assigning codes to text. Once text segments are coded, hovering the mouse over the coding shows the code name as a tooltip. Clicking on the coded segment also shows the code name. Select a file in the list to open for coding. The file selection list contains buttons that allow you to move to the next file, to move to the most recently coded file and to go to a bookmarked position in a file. There is also a button to view the file memo.

Create a new code by right-clicking in the left hand window. Codes can be assigned a colour by right-clicking on the code and selecting the *change code colour* option. Other options from the right-click menu include adding a memo to the code, deleting the code, renaming, adding a new code, and adding a new category.

The easiest way to code text, is to select some text, then left-click with the mouse on a code. A second way is to select a code, then select some text. Right-click and mark the text to assign it to the selected code. Hover the mouse pointer over coded text to see a tooltip of the code. Coded text can be uncoded by clicking on the text segment and pressing the *Unmark* button. If a section of text is

highlighted pressing the shortcut key 'q' will quickly code the selected text to the selected code. You can also pick from a recent code list after selecting test then pressing the shortcut key 'r'.

Ctrl Z will restore the last deleted coded segment.

Automatic coding

The top right section has buttons for auto-coding text.

You can:

- auto-code exact text

- auto-code sentences based on a text fragment in the current file

- auto-code sentences based on a text fragment for all files

- auto-code the current file using start and end text marks. You can use '\n' for a line ending character

- Undo previous auto-coding

Automatic coding is case sensitive. You must also define the end of a sentence, there is a default setting with a period and space. For auto-coding exact text matches, multiple sections of text can be assigned by auto code using the pipe '|' symbol. For example, *politics|politicians* can be assigned to the same code at the same time (for exact auto code text matches only). There is an undo option to undo recently performed auto-coding. Although if the project is closed and reopened, the undo option will be lost.

Searching the text

The coding text dialog contains a search for text function at the top middle, with tick boxes for searching case sensitive and for searching through all text files. When in the text area, selecting some text and pressing the shortcut key 's' will fill the search text box and focus on the 'next' arrow button for quickly looking through the document for the selected text. The search requires a minimum of 3 characters as a default. Right-click to change the default to 5 characters, or to search only after Enter is pressed. The Case sensitive check box will limit to case sensitive searching. The All files check box will continue the search through other text files.

The search uses Regex functions.

- A dot '.' is used as a wild card, e.g. '.ears' will match 'bears' and 'years'.

- A '?' after a character will match one or none times that character, e.g. 'bears?' will match 'bear' and 'bears'

- A '*' after a character will match zero or more times.

- '\. will match the dot symbol, '\?' will match the question mark. '\n' will match the line ending symbol. This Regex cheatsheet might assist: www.rexegg.com/regex-quickstart.html

- \b word boundary, '\bbound\b' will search for the full word 'bound', but not 'boundary'

Displaying and moving through the text for only one selected code

Underneath the codes tree are several buttons.

Figure 16: Search buttons for a selected code

Select a code and then click on the forward and back arrows. These now traverse through the text document showing the selected coded text. All other coded text is hidden. To restore and show all the codes, click on the now coloured grid button.

Overlapping codes

Overlapping codes can be difficult to view clearly. Overlaps are underlined to show overlapping sections. Mouse hover will show coded text, including overlaps. Clicking in an overlapping section, you can toggle through the overlapped codes using the shortcut key 'o'.
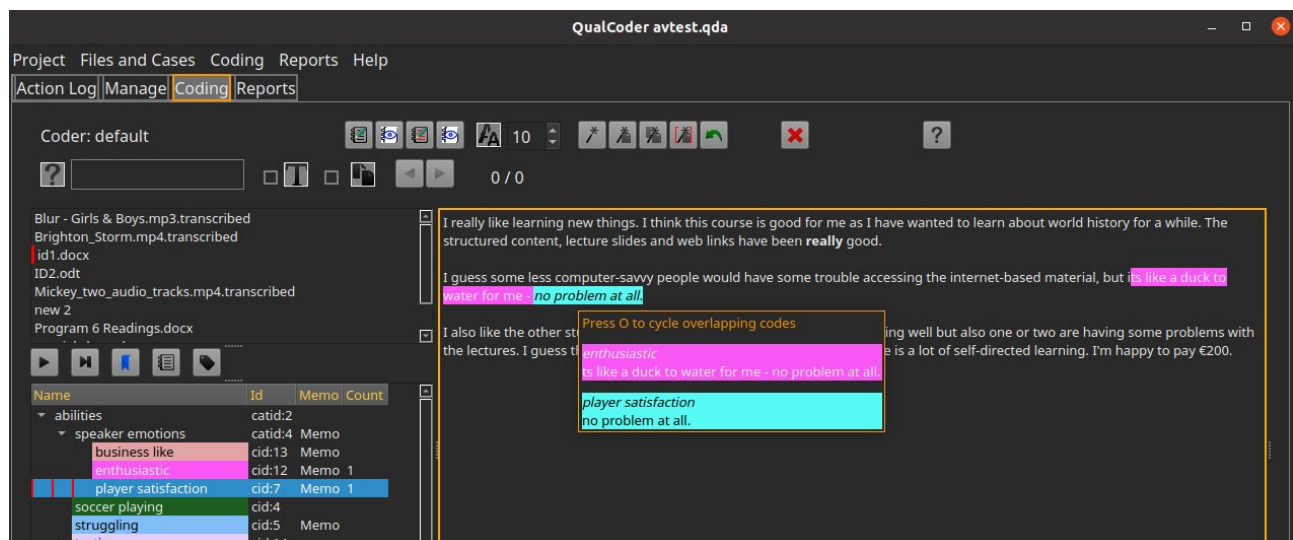

Figure 17: Text coding showing italicised overlapping text

Coded text memos

Coded text sections can contain their own memos. Either right-click on the area and select memo

from the context menu, or click in a coded text section and click the pencil and notepad icon on the right, or press the 'm' shortcut key. Memos will be displayed in the tooltips. Coded text containing memos is italicised.

Annotations

Add an annotation (like a memo for a text segment) to a text selection. The text will become **bold** to mark the position of the annotation (Coded text marked important is also bold). To re-open an annotation, select some of the bold text and right-click to get the Annotate option. Alternatively, click the notepad and pencil icon on the left. If a section of text is highlighted pressing the shortcut key 'a' will annotate.
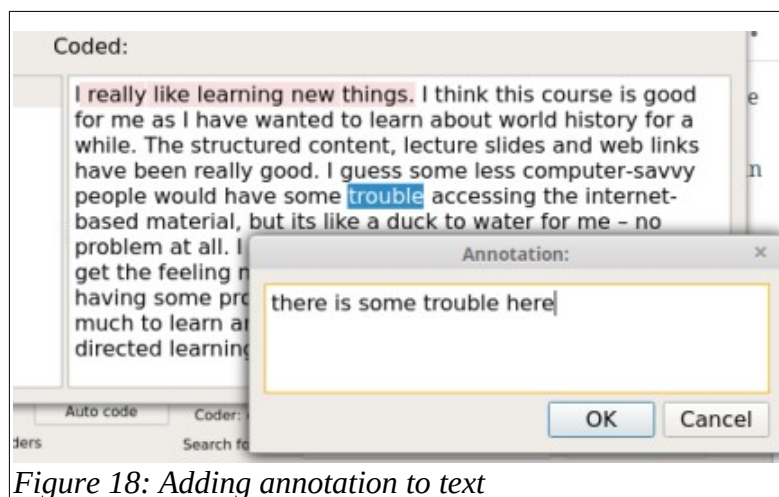

Figure 18: Adding annotation to text

Modifying code positions

When in the text area, click on a code with the mouse (Note the code must not be overlapping with another code at that position). Press the following key combinations to extend or shrink the coded text segment.

Shift + left arrow   Extends coded text to the left

Shift + right arrow   Extends coded text to the right

Alt + left arrow   Shrinks coded text from the right hand side towards the left

Alt + right arrow   Shrinks coded text from the left hand side towards the right

You can also right-click on a code and select c*hange start position* or *change end position* by a number of characters.

Bookmark

You can book mark a position in the current text and current file, by using the right click menu or by pressing the shortcut key 'b'.

Maximise screen area

To hide the top control panel, click in the text area and press the 'h' key. To show the top panel, press 'h' again.

Undo last code deletion

Ctrl + Z will undo the last deleted code. Useful in case a code is accidentally deleted.

Large text files

Large text files slow QualCoder. When opening a large text file (greater than 50,000 characters), right click on the file. A menu option allows you to get the first approximately 50,000 characters, subsequent clicks will open the next approximately 50,000 and so on. Approximately, because QualCoder looks for a line-ending (such as a paragraph or sentence ending) to more nicely section the star ta nd end of text chunks.

Right-hand hidden pane

The right hand side of the coding text pane has another pane tucked away. To open click and drag from the right-hand side of the window. This pane contains three options useful when coding. One option is when clicking on a code, the code name, code rule (memo) and random code examples are displayed. The J button displays an editable current journal, determined by the most recent date. The P button displays the editable project memo.
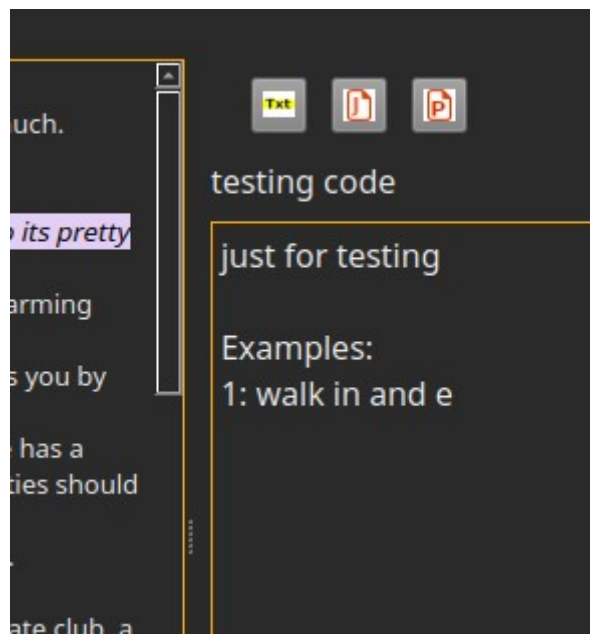

Figure 19: Right-hand side hidden pane

Edit Mode for the Text file

Press the Enter Edit Mode Button to enter the text editing mode, or Ctrl+E.

Text can be edited even after the text is coded or annotated or assigned (fully or partially) to a case. Sections of the text file or audio/video transcribed file will have sections of text underlined in green (case assigned), yellow (annotation) or red (coded) by any coders. When entering the edit mode, the entire file is loaded for editing. Other functions such as the codes tree and file list are deactivated.

You can select text that is not underlined and copy/replace without problems. You can click on a position (without selecting text) to then type, delete, or paste text. This can occur in underlined (coded, annotated, case-assigned) or not underlined (not coded/annotated/case-assigned) text locations. You will see the underlines shift as text is added or removed.

There are some limitations: Avoid selecting sections of text to delete (or to type or paste over). This is particularly an issue if any of those sections have been underlined (coded, annotated, case-assigned). It may also be an The reason is that positions of the underlying codes/annotations/case-assigned may not correctly match as intended. If you have made a change that you think has affected these coded/annotated/case-assigned positions badly, exit the text editing window by pressing the Cancel button. The edits occur within the database stored text. The original text file is not changed.

4.4.3 Coding images

Images can be coded in a similar way to text coding. Select a code. Left-click and drag to highlight the area you want to assign to the code. Right-click will open a menu where you can remove the coding or add a memo. At the bottom of the screen there is a slider control to re-size the image. Coded rectangles are coloured to match the code colour.

Another right-click menu option enables you to resize and/or re-position the coded area. This requires entry of pixels as positive or negative numbers.

Ctrl + Z will undo the last deleted coding. This is a convenience in case of an accidental deletion.
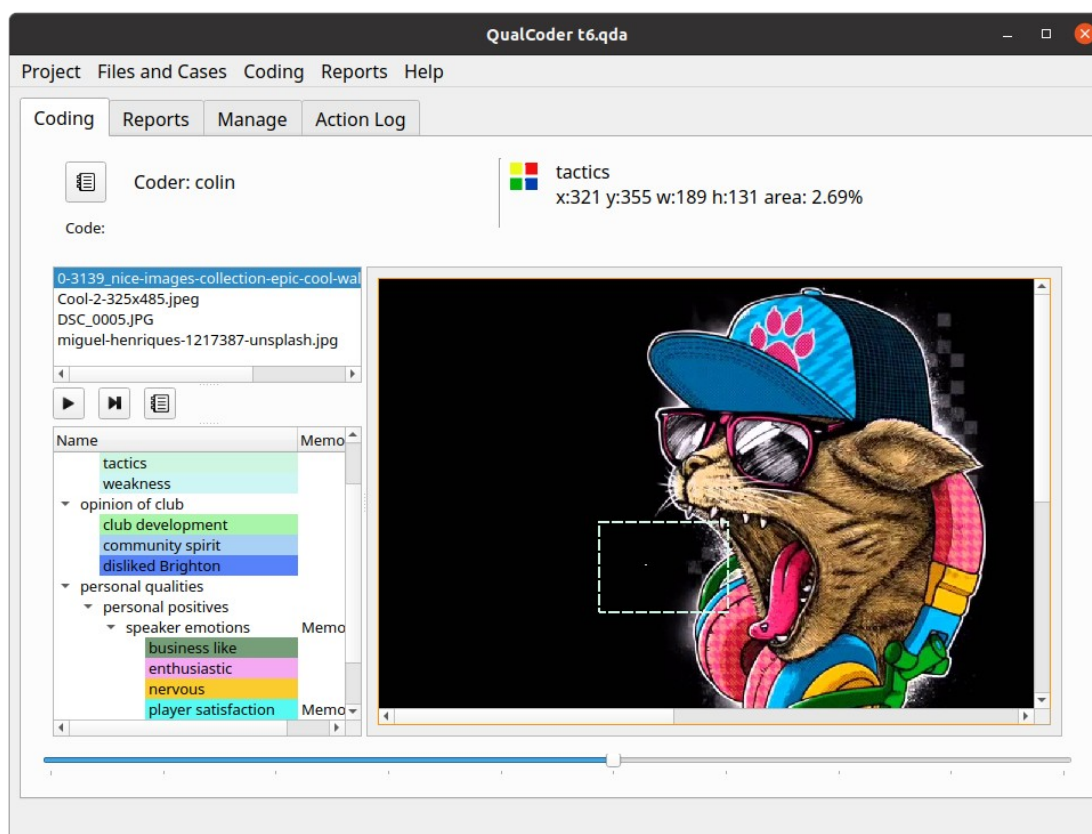
Figure 20: Image coding screen

Maximise screen area

To hide the top control panel, click in the image area and press the 'h' key. To show the top panel, press 'h' again.

4.4.4 Coding audio and video

When coding audio or video, two windows are displayed, shown below. One window has the audio or video playing. The other window has the controls and a button to begin and end a coded segment. The controls window shows the codes in the bottom left pane and the .transcribed file text is shown in the bottom right pane. The transcription text can also be coded and annotated in this window. Right-clicking on a timestamp will give you a menu option to go to that section of the video. If a video has multiple audio tracks, you can change the audio track too. Checking the scroll checkbox allows the transcript to scroll in time with the video, based on detected timestamps, however, you need to uncheck the scroll function to be able to code the transcript.

- Ctrl R and Alt R are shortcuts to rewind 5 or 30 seconds.

- Alt F will forward 30 seconds.

- Ctrl S and Ctrl P will stop/start, play/pause.

- Ctrl Shift < will slow play rate down to a minimum of 0.1.

- Ctrl Shift > will increase play rate up to two times.

There are icons that replicate the above functions also.

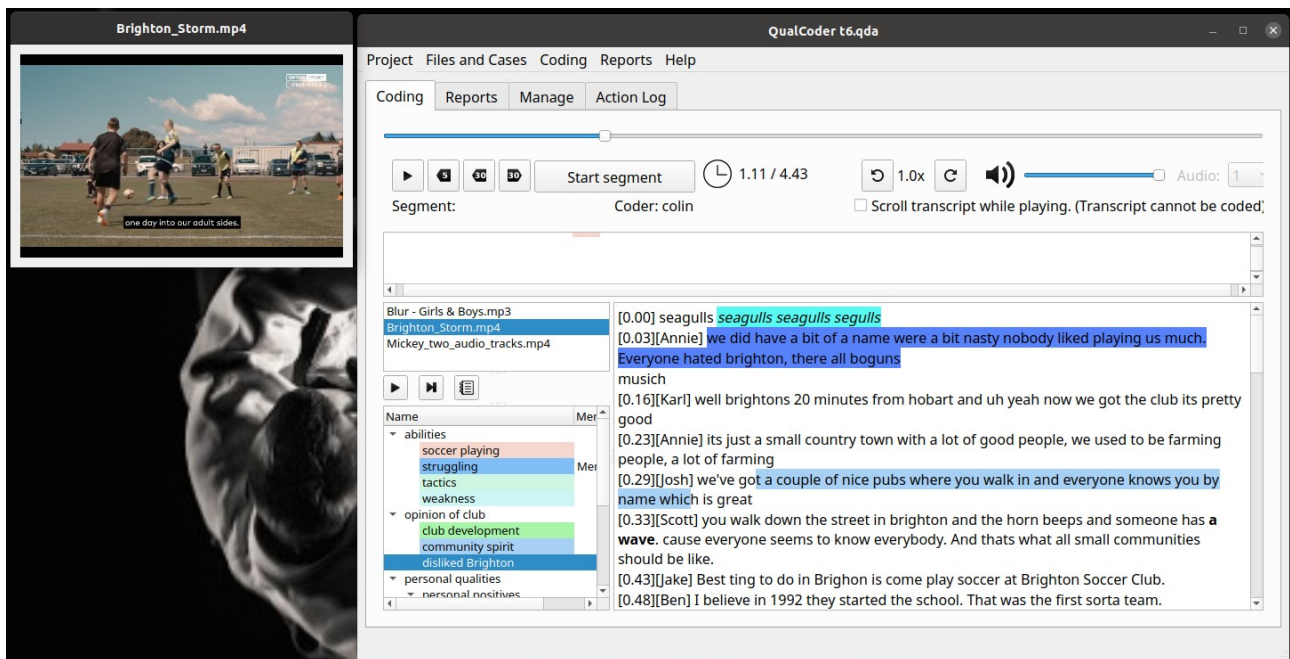- Ctrl Z > will restore the last deleted coding (segment or text).

Figure 21: Audio video coding screen, showing coded transcript and one coded segment

Audio Video segments

Once a segment is made using the *Start segment/Stop segment* button this can be assigned to a code by right clicking on the relevant code and assigning the segment.

Coding stripes for the coded segments are shown in the upper pane. Hovering the mouse over each stripe shows the code name, time segment and any memo attached to that coded segment. Right clicking on a coded segment stripe shows a menu that can be used to edit the memo or delete the coded segment or play from this point. Coded stripes are shown on various lines so that they do not overlap.

The transcript text can also be coded and annotated in this dialog. However, when the Scroll transcript check box is checked, this cannot be performed. Playing the video when this is check will scroll the transcript using the timestamps in time with the video.

Linking text to coded segments

There are two ways to link text and coded segments.

One way is to select text (it can be coded or preferably uncoded) then assign it to a segment. This is done in two steps shown in Figure 22. First select the text and right-click P*repare text link to segment*. Then right-click on the receiving segment, choose *Link text to segment*, to assign the text.
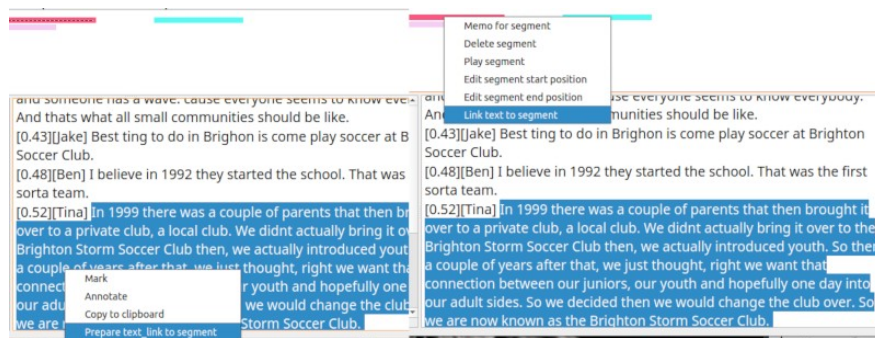

Figure 22: Assign a text selection to a segment

The second way is to select a segment and link it to a text selection via a similar process.

Modifying code positions in the text area

When in the text area, click on a code with the mouse (Note the code must not be overlapping with another code at that position). Press the following key combinations to extend or shrink the coded text segment.

Shift + left arrow   Extends coded text to the left

Shift + right arrow   Extends coded text to the right

Alt + left arrow   Shrinks coded text from the right hand side towards the left

Alt + right arrow   Shrinks coded text from the left hand side towards the right

You can also right-click on a code and select c*hange start position* or *change end position* by a number of characters.

Other key shortcuts in the text area

A annotate - for current text selection
M memo code - at clicked position
O Cycle through overlapping codes - at clicked position
Q Quick mark with selected code - for current text selection
R opens a context menu for recently used codes for marking text – for current text selection

The video window

On the video window you can right-click and have options to change the window size, in pixels. You can also export a screenshot. The screenshot will be save as *Frame_yyyymmdd_hh_mm_ss.jpg*

in the directory listed in the Settings.

4.4.5 Code by case

This option allows you to select a case and move through the text, image and audio/video files associated with that case. The upper screen indicates there are 3 files associated wit this case and id1.docx is the currently display file.

There is reduced functionality in the code by case section. Text cannot be auto-coded. Instead open the file in the *Code text* option. The reason is that auto-coding text may code beyond the text assigned to the case.

In audio/video, code segments can be applied to time sections of the audio or video. However, any associated text transcript is not displayed. Displaying bot the video file and the text transcript was difficult in the code by case approach. However, you can open the file in *Code audio/video* to code the text and the audio/video segments at the same time.
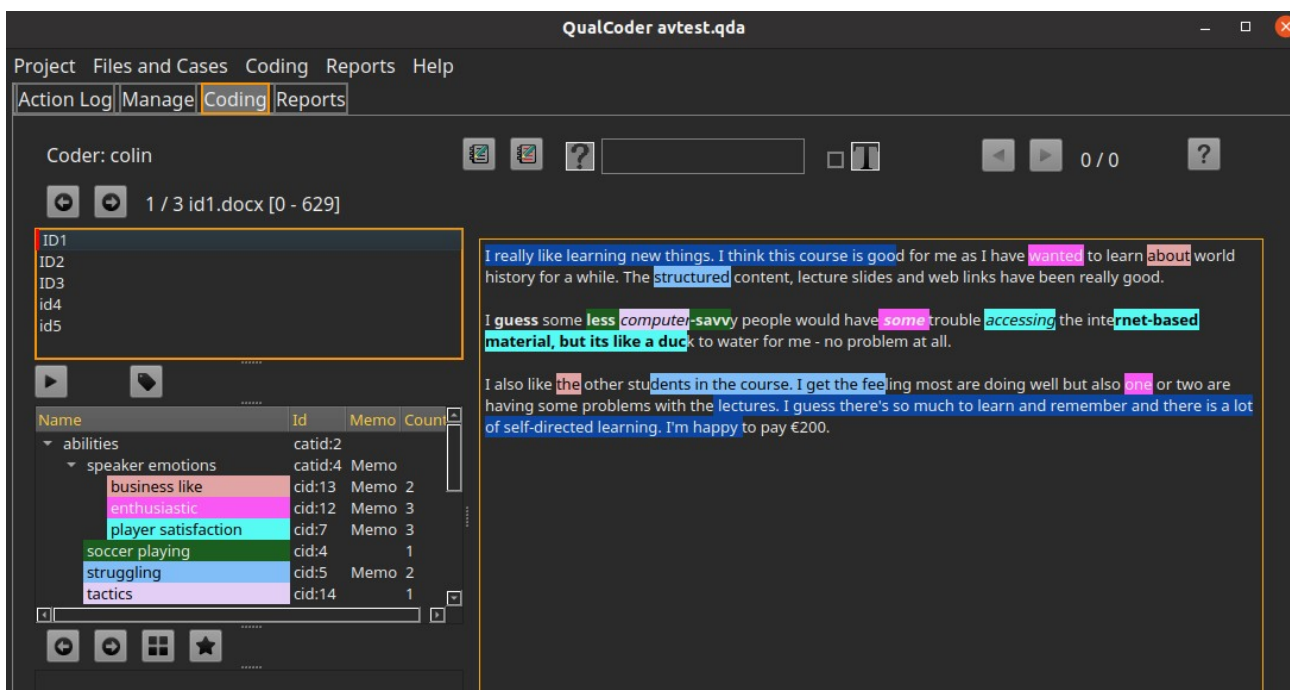

Figure 23: Code by case

4.5 Reports

4.5.1 Coding Reports

This dialog gives a list of coded text based on your selections. One or more codes need to be selected and one or both of *coder 1* and *coder 2* need to be selected. The *Search* button will present the results. If a category is selected all codes in that category are also selected. Multiple categories

can be selected using the mouse and the Shift or Ctrl button. Codes and categories can be sorted to help find the codes of interest.

Codings can be narrowed down by using the *File selection Case selection* or *Attribute selection* buttons. Only codings within the selected files or cases will be presented. If text is entered into the *Search text* field, only codings which contain the matching text will be presented. Codings can also be narrowed down to case selections using the *Case selection* button.

The *Search Text* box also limits the reported codings. The search text looks for any codings in text that contain the search text. The search text also looks for matching text in memos for coded image areas and coded audio/video segments. The search text function must be used in combination with *File selection, Case selection* or *Attribute selection*.

The *Attribute selection* button opens a dialog window where you can select attributes for files and cases, for example: only interview files for people aged > 60.
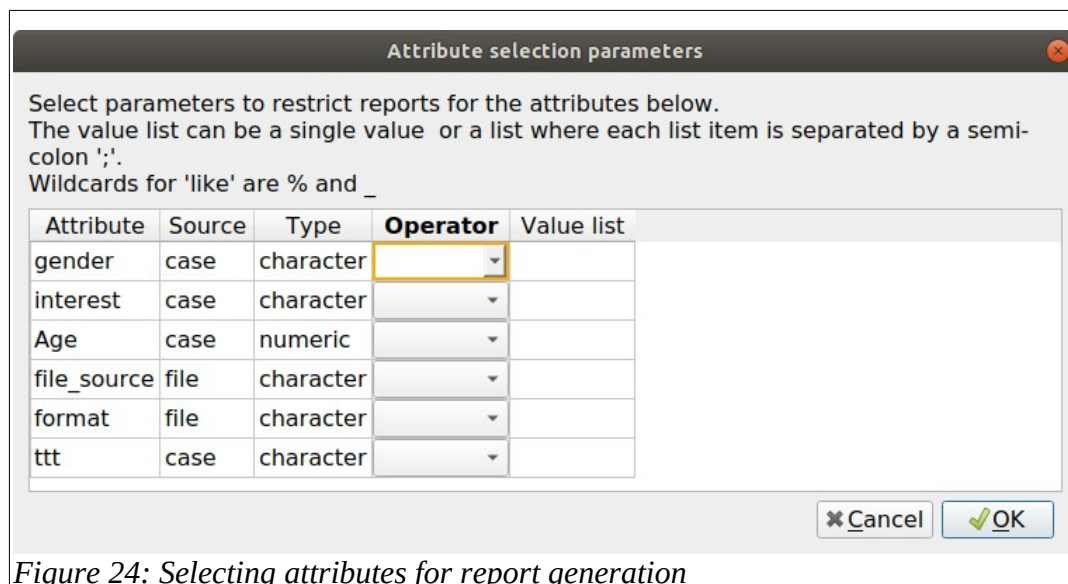

Figure 24: Selecting attributes for report generation

Reports can also show a matrix in the right-hand pane. This matrix can display codes or categories by files or by cases. There is a checkbox to transpose the matrix, you need to re-run the report.

There is a statistics summary checkbox to show summary additional information about the codings. This includes percentages of files and counts.

The text context checkbox fills more detail in the report for each text coding. This provides the preceding 250 characters and post-coding 250 characters for greater context.
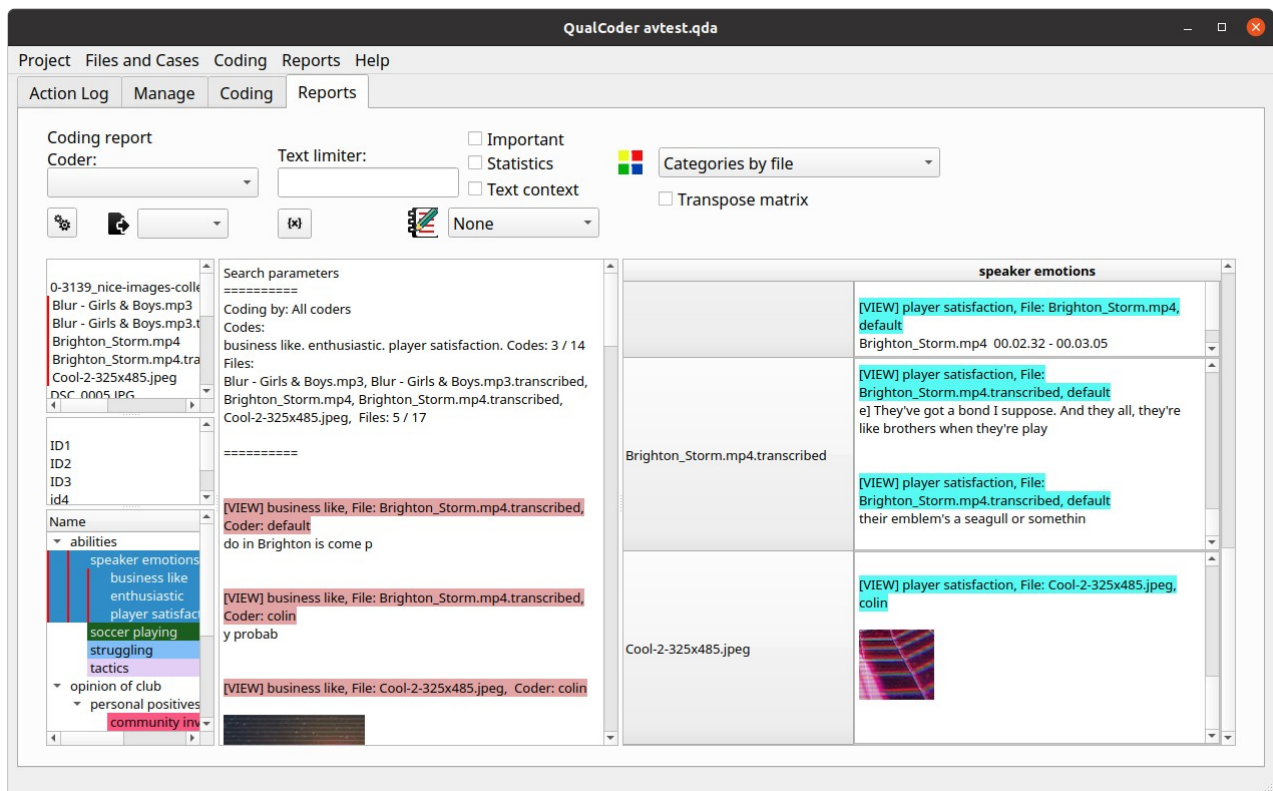
Figure 25: Search showing the categories to files matrix.

Each of the three panes can be widened or narrowed by dragging with the mouse on the bar that splits each section. Pressing the H key when in the text pane or in the selection lists will Hide or show the top controls section. This may be useful when results are generated and you need more screen space.

Exporting reports

Reports can be exported to text, open document or html files. HTML files are provided as the main html file and a supporting folder which provides, images and audio or video media. Reports can also be exported as a csv file, where each column is a code.

Currently case matrices are not able to be exported.

4.5.2   Node graph

A graph of categories and codes is displayed. There are several options to change what is shown – such as Black and White, All or selected categories. There are two display styles – list view which is ordered with categories and codes or circular view. The circular view fans the codes and categories out, but you may need to move some around as they can overlap of you have many. Click on the image area and + or – will zoom in and out.

Each code or category can be moved around by clicking near the edge of the box and dragging it

around. Clicking on the text allows you to temporarily change the code or category wording. Right-clicking in a code gives a menu of options such as displaying the memo, or displaying all the case or file text that has been coded with the selected code.

Right-clicking on a line allows you to change the thickness, change to dotted line style or change the line colour. This might be useful for emphasis. Right-clicking on empty space allows you to add free text boxes, files text boxes, and case text boxes., and also to insert extra lines between components.
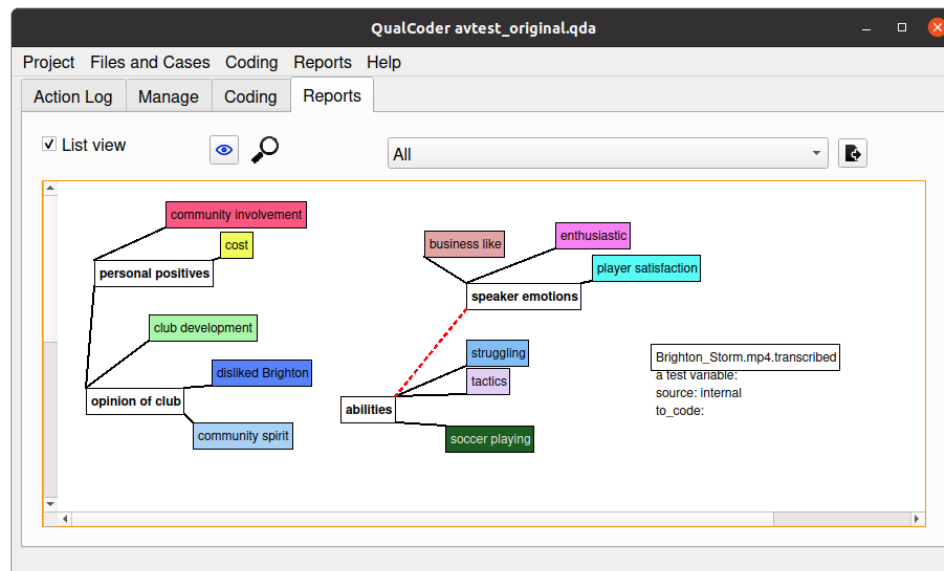

Figure 26: Graph of categories and codes

A button exports the graph as a png file.

4.5.3   File summary and Case summary

A file summary report provides details of the file and a summary of the coded segments in the file. A case summary is similar but provides the details by the case.

4.5.4   Coding Comparison

This option shows the similarities and differences between two coders. Select two coders and click the *run comparisons* button. Coder comparison is only available for coded text, not coded media files. For each code:

Agreement % shows agreement for a combination of coded and non-coded text characters.

A and B % shows agreement for the only the coded text characters divided by the total characters in the text.

Not A and Not B % shows the total of the uncoded text divided by the total characters in the text.

Disagree % shows the percentage of all the coded and non-coded text that did not match between coders. It is the same as 100 – the Agree %.

Cohen's Kappa is calculated based on the information in Wikipedia https://en.wikipedia.org/wiki/Cohen%27s_kappa

Figure 27: Coder comparison dialog
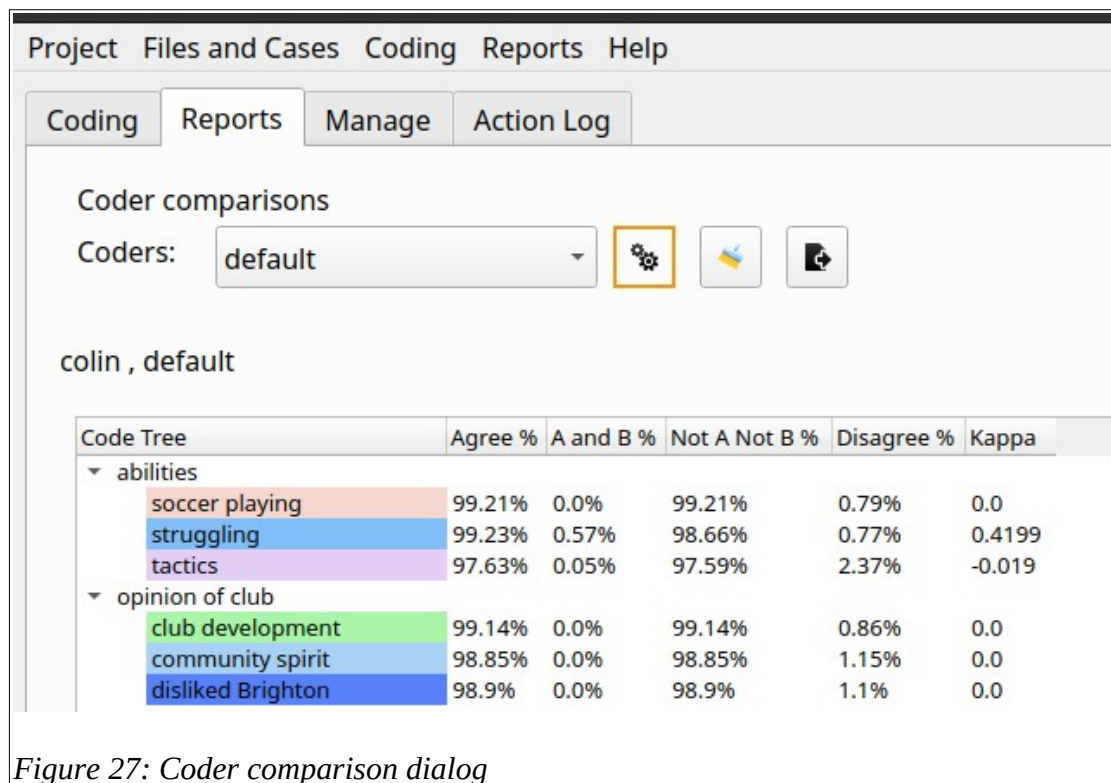
4.5.5 Code relations

This dialog show the relations between two or more codes. This can only be applied to text files. A csv file can be exported.

 The relations are:

- Proximity – Two codes do not overlap. The distance in number of characters is shown.

- Overlap – Two codes partially overlap. The lowest and highest character positions of the combination are shown. The union of the overlapping section is shown in character positions.

- Inclusion – One code is included within another code. The lowest and highest character positions of the combination are shown. The union of the overlapping section is shown in character positions.

- Exact – Both codes match in their start and end positions. The lowest and highest character

positions of the combination are shown. The union of the overlapping section is shown in character positions.

Hover the mouse pointer over the code id (Code0 and Code1) (in the example code id 5 is tactics) to get the code name and its start and end positions. FID is the file ID, hover pointer for details. Rel is the relationship between the codes. Min is the earlier positioned code. Max is the higher positioned code. Overlap0 is the lowest character position of the combined overlapping codes. Overlap1 is the highest character position of the combined overlapping codes. Union0 is the character position where the overlap begins, and Union1 is the highest character position where the overlap ends.

Figure 28: Code relations showing distance, overlap, and mouse hover information

4.5.6   Code frequencies

Code frequencies can be generated for all or selected files. The frequencies are shown by coder and as totals. In this example there were multiple coders.
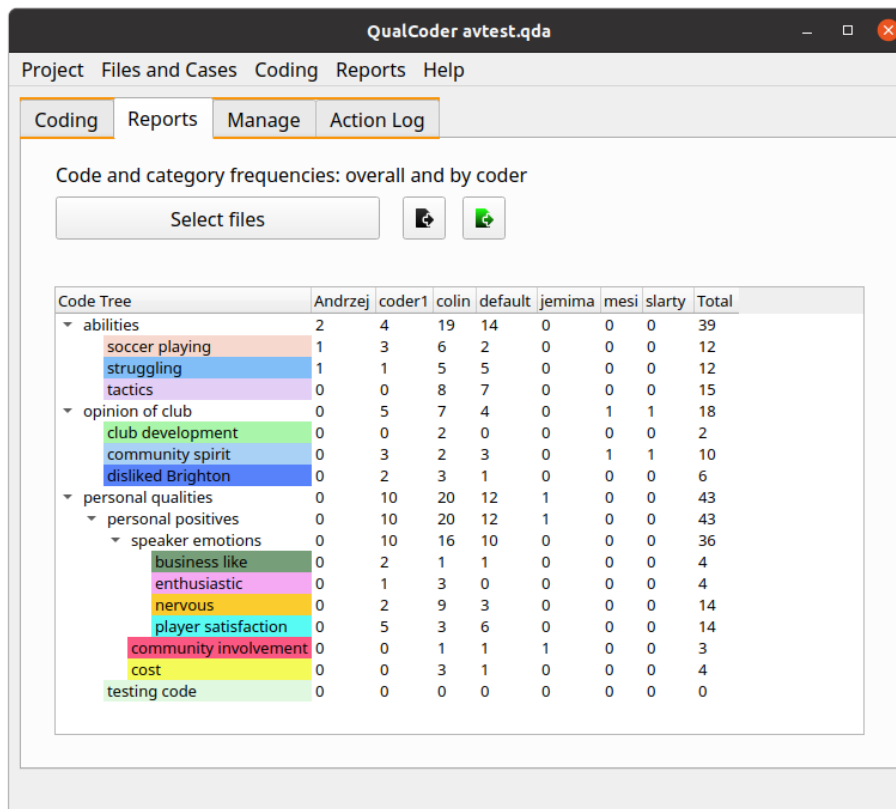
Figure 29: Code frequencies

4.5.7 Code comparison by file

This shows comparisons between two coders for once code and a file. You need to select two coders, one code and a file. This works with text, image and audio/video files. Statistics including kappa are calculated.

In the text file comparison, one coder is assigned a yellow color, the second coder is assigned blue. Text overlaps are assigned green.

This report is useful to check how similar two coders are, when applying code rules and codes to files.
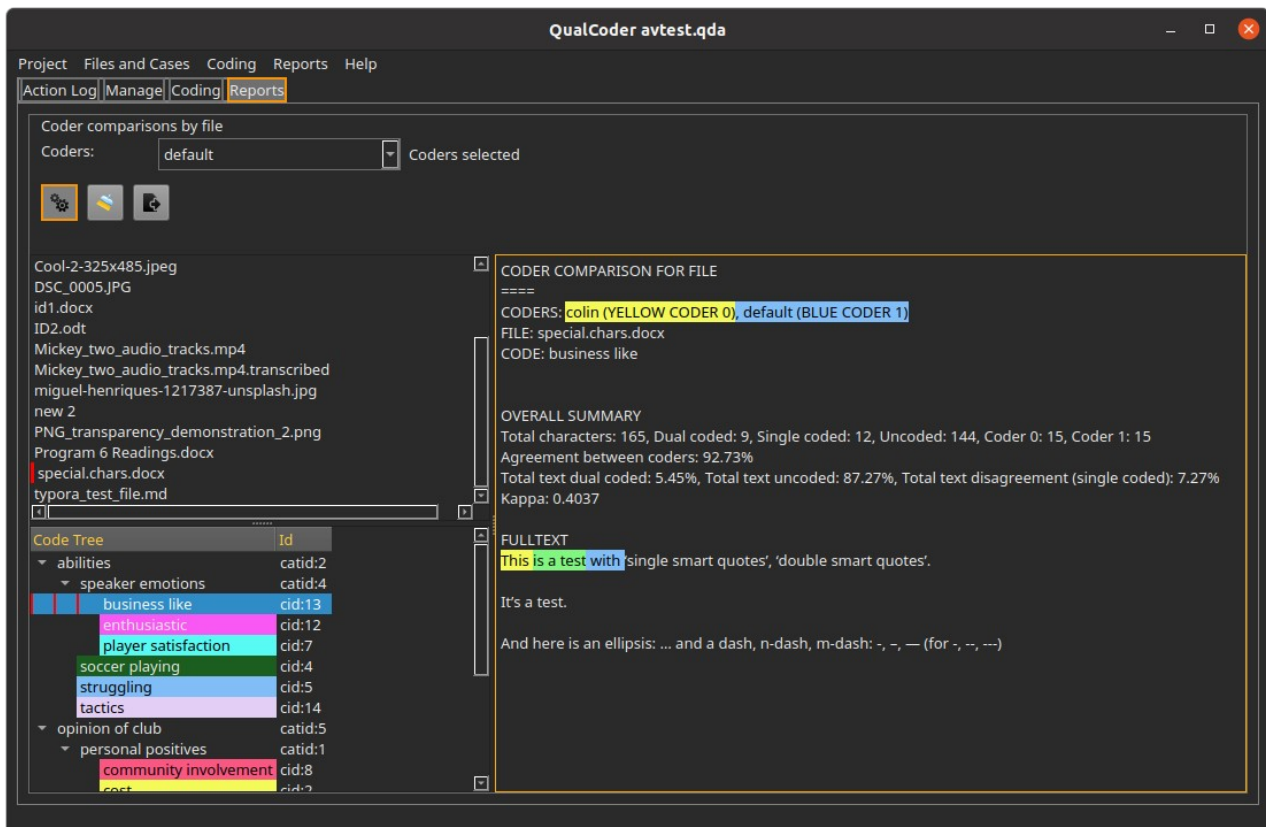
*Figure 30: Report - coder comparison for file*

4.5.8 Charts

Charts are displayed in the default web browser. Html files of the charts can be exported. Chart options for displaying codes are pie, bar, sunburst and treemap charts. Case and file attributes can be displayed as bar charts or histograms.

Pie, bar, treemap and sunburst charts can be applied to coding count, text coding total characters, image coding total areas (pixels), A/V coding total milliseconds.

Heatmaps of codes by files or by cases can be produced. Heatmaps are useful to see which file or case has a higher or lower proportion of particular codings.
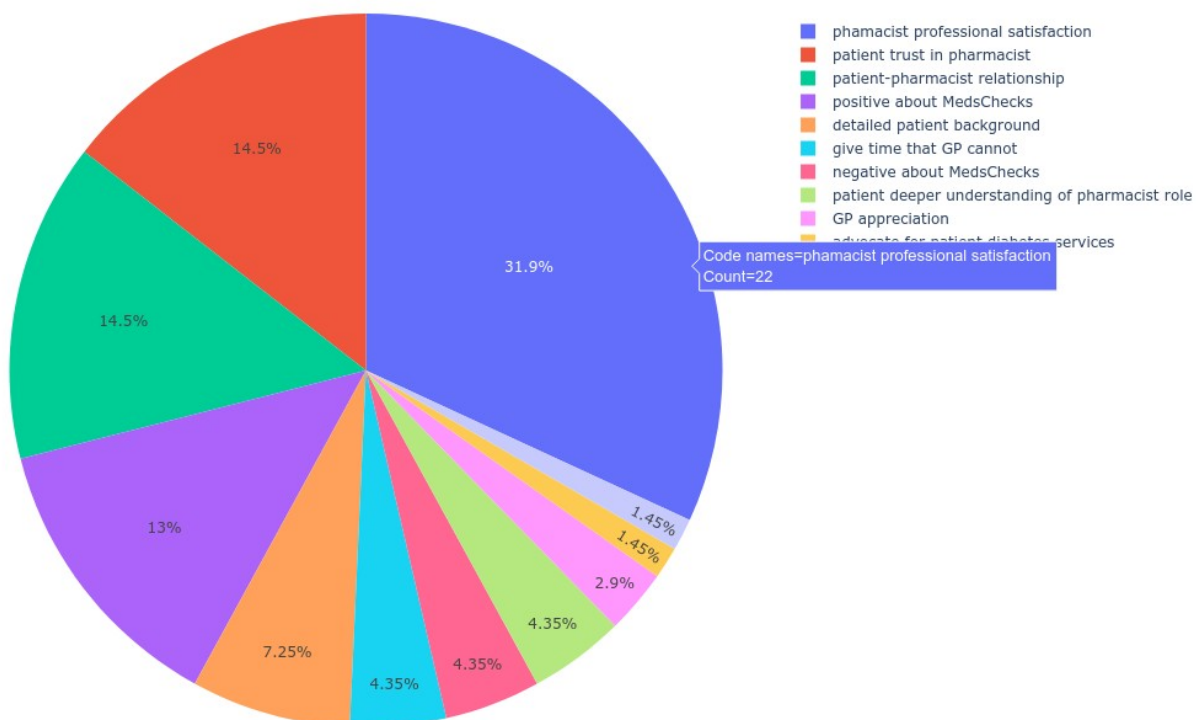
Data filters can be applied to reduce the number of codes displayed. For example, setting a minimum coded number, showing codes of only one coder or category or file or case.

Selecting attributes is another way to restrict codes to be shown. One limitation with selecting attributes is that combining file selection attributes and case selection attributes – there may be overlaps and not additive restriction. This may be improved in the future.
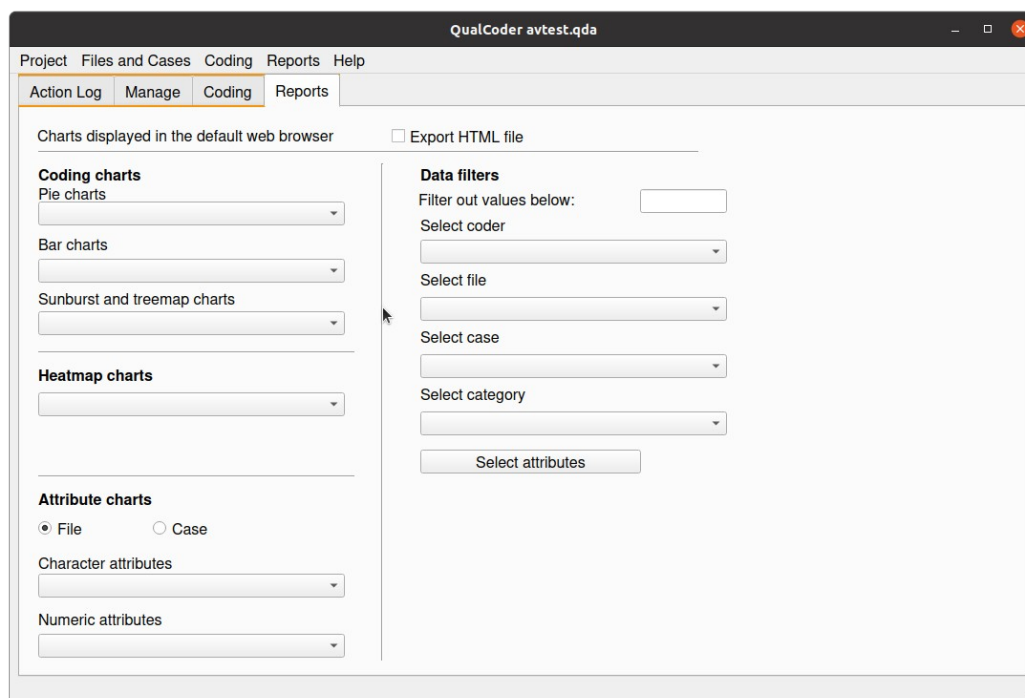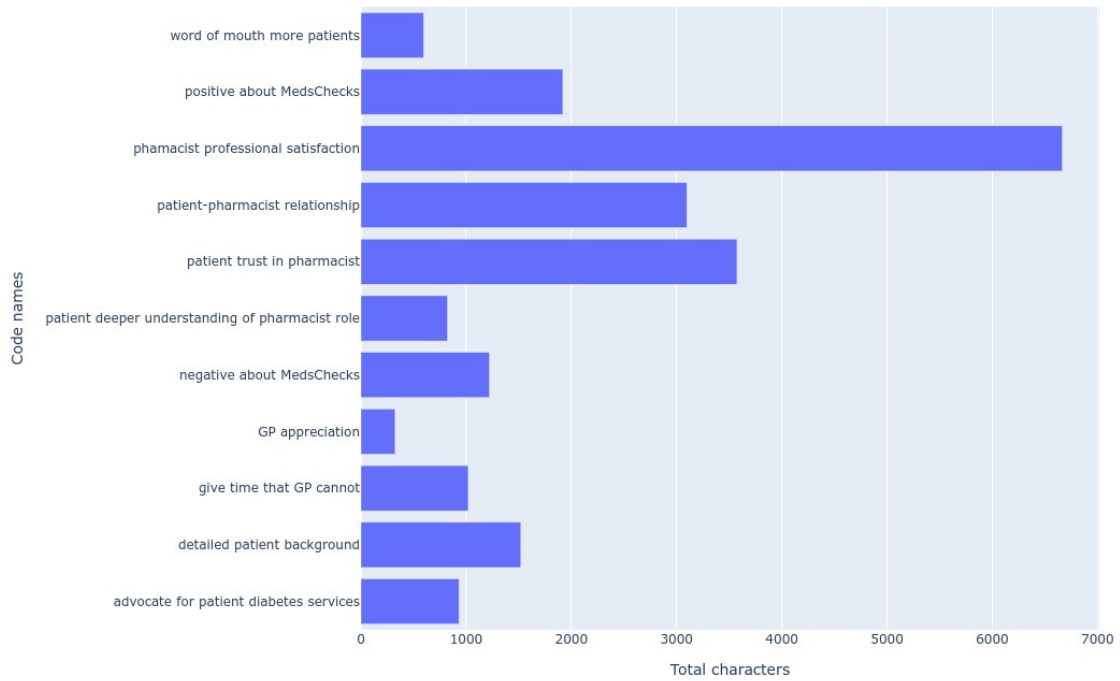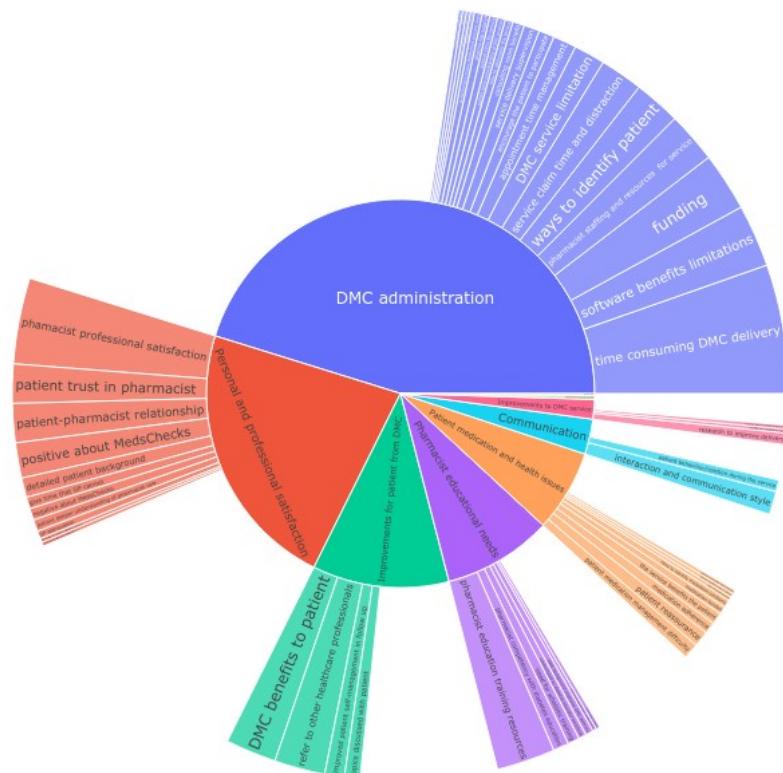
Pie chart

Bar chart

Code text by character count
Category: Personal and professional satisfaction

Sunburst chart

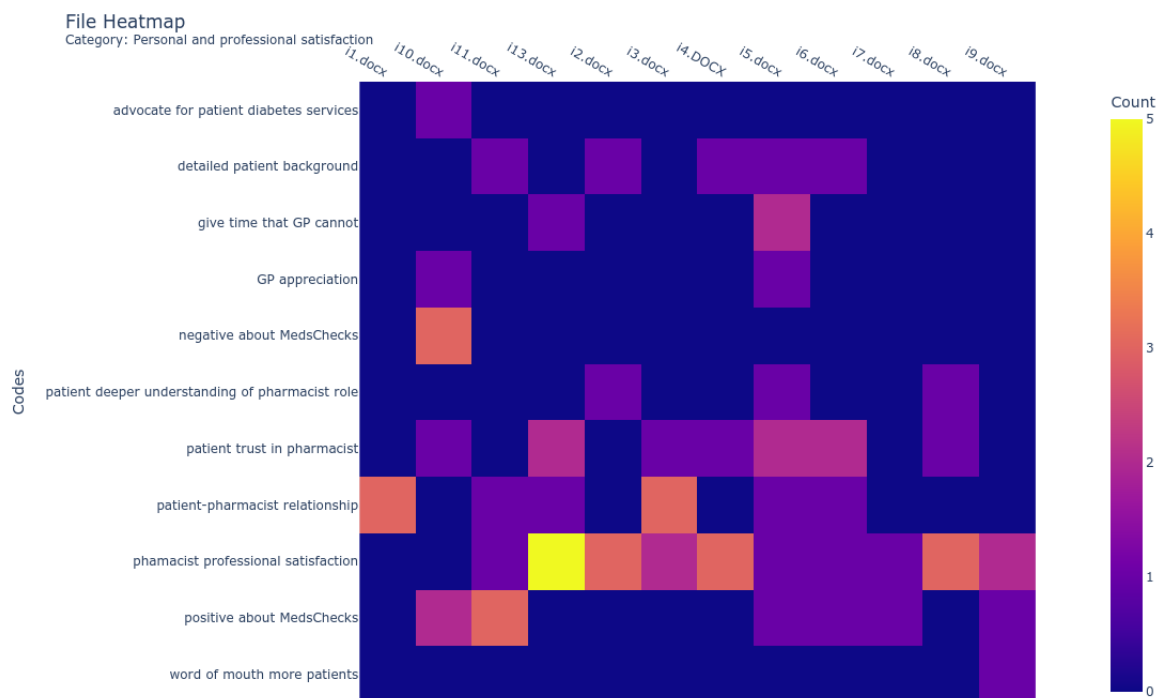**sunburst chart of counts of codes and categories**

Treemap chart

treemap chart of coded image areas - pixels

Heatmap chart

4.5.9 SQL Statements

This dialog contains three panes. The top pane is where SQL statements are entered and the bottom pane contains the results of queries. The left pane contains tables and field names. Double-clicking on a field name adds it to the SQL statement.

Results can be exported to a delimited file.

If you are not familiar with SQL take care as you will be able to update and delete the data as well as select data. Some Unicode symbols are not converted to plain text and are ignored.

Most table fields are text. The following fields are integer: *anid, avid, attrid, caseid,catid, cid, fid, id, imid, jid, pos0,pos1, x1, y1, width, height.*

There are several prepared join statements listed:

- Case text
- Codes fileid and coded text
- Coded text with each case

- Get coding table – an implementation of the RQDA function of the same name

Most table fields are text. The following fields are integer: anid, avid, attrid, caseid,catid, cid, fid, id, imid, jid, pos0,pos1, x1, y1, width, height.

Right-click in the results table for filtering options.

Right click in the SQL window give you various options such as select all, copy, paste.

There are several default queries stored in the Default Queries section. Examples are coded text with each case. All or selected annotations.

There is a Saved Queries section. This is where your saved queries are stored. To save a query, right-click on the query text, and enter a name for the query. To delete a save query, right-click on the query name in the left-hand side tree, an option there is to delete the query.
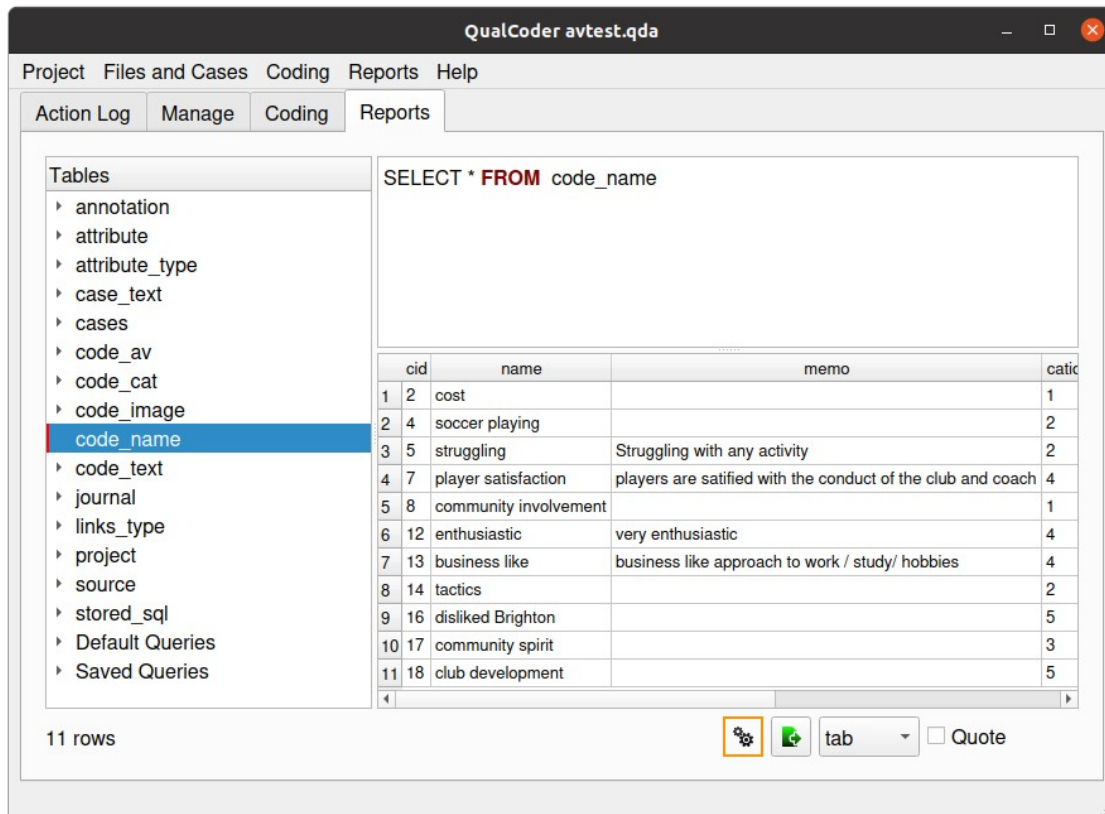
Figure 31: SQL dialog showing database tables and fields , SQL entry and results

4.6 Help Menu

Contains a link to the online QualCoder wiki. An About QualCoder notice and Special Functions.

4.6.1 Special Functions

There are two special functions. Merging one project into the opened project; and updating a text file while attempting to maintain the existing coded segments. Before running any special functions, make a copy of the existing project folder.
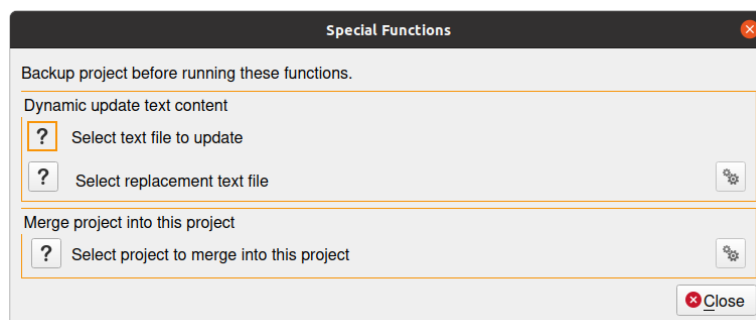

Figure 32: Special functions

Replace text file

The current special function allows you to replace a text file with a new text file and retain the

existing coded segments and annotations from the original file. It was designed to be used for text extracts from blog post and commentaries that get updated over time.

It is essential to back up the project first in case this function does not work as well as expected. It searches for matching test to re-assign existing coded segments within the newer file.

Merge QualCoder projects

This function is available in QualCoder 3.0 and newer. Select a project to merge (the source project) into the currently opened project (the destination project), then click the *Run merge projects,* cogs button. Before performing the merge, make a backup of the destination project.

The following occurs:

- Copies unmatched files from source project folders to destination project folders.
- Adds new (unmatched) source categories to destination database.
- Adds new (unmatched) source code names to destination database.
- Adds journals and stored_sql to destination database, only if they have names that do not match existing destination names.
- Adds text codings, text annotations, image codings, A/V codings to destination database.
- Adds cases and case_text details (links from cases to text file segments and images and A/V).
- Add attributes for files and cases.
- Adds attribute values. Existing destination attribute values are not over-written, unless they are blank.

Warnings when merging:

The main warning is if the source project and destination project contain the same text file. If the source project text file has been edited, and may be longer or shorter, then the imported text coding positions and annotations will be incorrect. This is because the original destination project text file text stored in the database is not replaced with the edited text file from the source project.

5 Imports and exports

5.1 Import survey

This requires a CSV or Excel (xlsx format) file. You can try importing the survey.csv file in the Examples folder.

Survey files in a CSV format, are comma delimited format. Another delimiter can be chosen. For tab-delimited files type *ta, tb,* or *tab* in the Delimiter box so that QualCoder knows the csv file is tab delimited. The first row must contain the headings for attributes. The first column must contain the unique identifiers for each survey respondent.

QualCoder will determine if the other columns (attributes) are Numeric or Character. QualCoder cannot determine if an attribute is qualitative data. You must right-click and change the field type from *character* to *qualitative* for those fields that need to be qualitative.
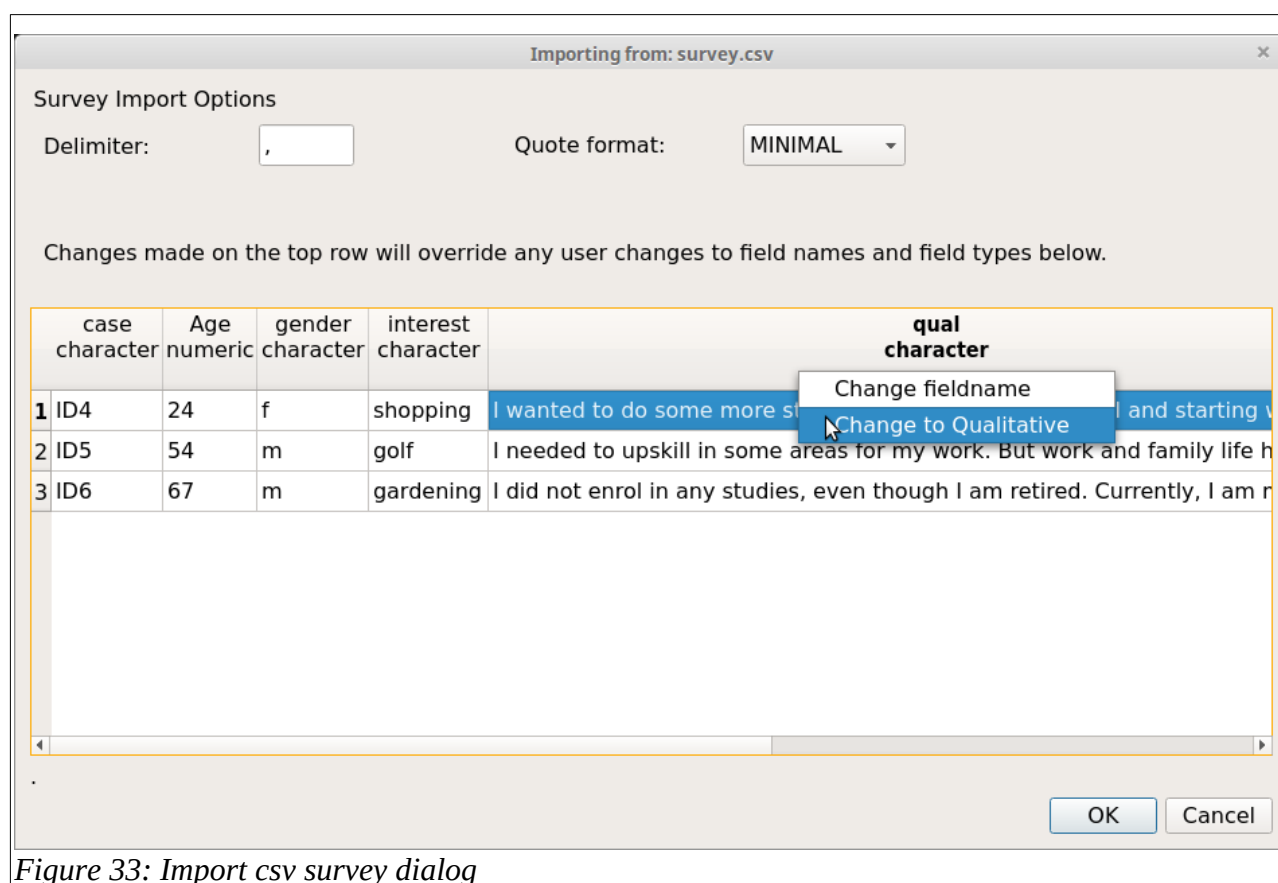

Figure 33: Import csv survey dialog

When you click on the OK button, the cases and their attributes will be added. The qualitative column will be converted to a file which will be named with the column name plus the current date and time. Each respondent's row will be prepended with [the unique id] so that you can identify each respondent. Also, the text for each respondent will be automatically linked to the corresponding case.

5.2   REFI-QDA

The Rotterdam Exchange Format Initiative (REFI) is an open standard for exporting and importing codebooks and projects from and to different computer-aided qualitative data analysis software. The website for the exchange initiative is www.qdasoftware.org

QualCoder is able to export and import a codebook.

Exportation of a project and importation of a project are functional. At this stage I am not prepared to state it is fully compliant with the REFI-QDA standard. Importation of project.qpdx files mostly works. For audio and video, importation of transcriptions and syncpoints is not yet fully tested. Importation/linking of relative linked files has not been tested.

Export from QualCoder and import into some other software can change code positions due to differences in how line endings are managed by the importing software (MAXQDA, Atlas.ti).

Features such as sets and graphs cannot be imported as this functionality is not within QualCoder. Other data formats are not preserved in the original format, for example attributes with date, integer, float or boolean would be converted to text data.

To import, close any currently opened project first. Then choose a new QualCoder project name, then select the qdpx import file.

If no coded data is visible, you may need to change the current coder's name in Settings. Try the drop down box.

The REFI-QDA format does not support round-tripping. That means that opening a qdpx project file may lose some features that exist in the original project, regardless of which software created that original project.

5.3   RQDA

Projects made with RQDA (http://rqda.r-forge.r-project.org/) can be directly imported. All data except for file categories are imported.

Close any opened project. Then in the Main Menu under Project click on RQDA Project import. You will be asked to create a new project - so enter a new project name. Then you will be asked to select the RQDA project file. QualCoder will then import the data.
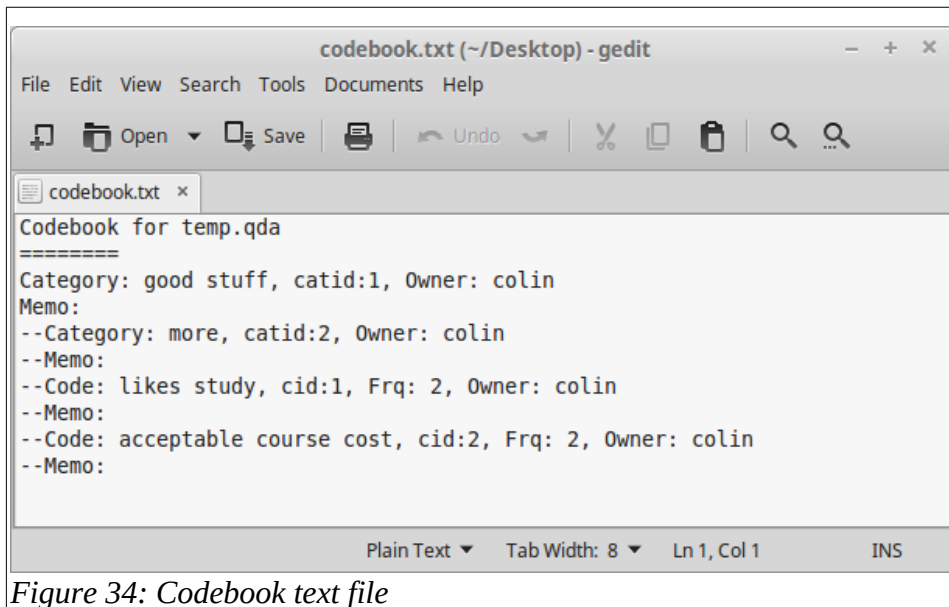
If no coded data is visible, you may need to change the current coder's name in Settings.

5.4   Using the project other operating systems

There are differences in line endings between MacOS, Windows and Linux operating systems. QualCoder will open the same project on the above different operating systems, differences in how python interprets line endings may affect text coding positions by one character.

5.5 Codebook

A codebook is a list of your codes. Each code memo should detail the reasons for the purpose of each code. The codebook can be exported to a text file. The codebook also shows the frequency of the codes used (from all coders). Example codebook output is shown below. As codes and categories are put in a tree like structure the double minus '–' indicates the subordinate codes and categories within a category.

```
Codebook for temp.qda
========
Category: good stuff, catid:1, Owner: colin
Memo:
--Category: more, catid:2, Owner: colin
--Memo:
--Code: likes study, cid:1, Frq: 2, Owner: colin
--Memo:
--Code: acceptable course cost, cid:2, Frq: 2, Owner: colin
--Memo:
```

Figure 34: Codebook text file

6 Other details about QualCoder

The qda data folder contains folders for imported documents, images, audio and video. It also contains the sqlite database, named data.qda, to store coding data.

QualCoder creates QualCoder.log and config.ini and recent_projects.txt files inside a .qualcoder folder in your home directory. The config.ini file contains the name of the current coder, a default working directory, font choice and language. The log file records program errors and some user actions. There maybe several rolling log files.

QualCoder is written in python 3.9 using Qt6 for the graphical interface. The minimum recommended python version is 3.6. The minimum recommended screen size is 1024x600 pixels.

6.1 Acknowledgements

Ronggui Huang and Zhang Gehao for creating RQDA, which inspired this software. Mike MacCana for the source code for the docx module. User: bit4 on stackoverflow who presented the source code to convert html to text. ebooklib: Aleksandar Erkalović https://github.com/aerkalov. The VideoLAN team for the bindings to VLC. https://github.com/oaubert/python-vlc. The ffmpeg team. https://ffmpeg.org/ used with speech to text and waveform/spectrograph images. Julius Reich for creating the cool QualCoder logo. To various members on github for supporting this project.

6.2 Publications citing QualCoder

Please see the WordPress page: https://qualcoder.wordpress.com/studies-using-qualcoder/

7 Future plans

Currently, the primary testing environment is Ubuntu 20.04 and secondly Windows 10. QualCoder has been used on Ubuntu 19.04, Linux Mint 19.04, Lubuntu 18.04, Arch/Manjaro, Fedora, Raspberry Pi and MacOS.

In Windows, reports exported in ODT format are okay, but some images may overlap when the ODT file opened with Microsoft Word rather than opened with LibreOffice. There are occasional issues in Windows with the software finding the VLC libvlc.dll file for audio/video work.

Some potential plans for the future are to add the following functionality:

General:

- Improve the REFI-QDA project import and export to make it standards compliant. This is gradually improving. The main issues now seem to be around audio/video testing.

- Possibly look at storing bibliographic information

Reports:

- Possibly text mining functionality, word clouds, word visualisations and alternative ways to visualise codes

8 About the author

Hello, my name is Colin Curtain and I am a pharmacist and lecturer from Australia. I have many interests including clinical pharmacy, computer programming, research, statistics and clinical decision support. I completed a PhD evaluating computerised clinical decision support in 2014. When doing my PhD I used R as the statistics program of choice. This is where my interest in qualitative data analysis and the use of RQDA came from, which ultimately led to this project.

Originally when doing my PhD I analysed qualitative survey data via a thematic approach using RQDA. I then thought this could be reproduced in Python, so I scripted an earlier version called PyQDA which worked OK at the time.

I thought I would share QualCoder in the hope that it may help others. Bugs are possible and functionality could be further extended. I only work on the programming for this in my spare time.

If and when you use QualCoder and publish your results, I would really appreciate it if you let me know the bibliographic information of your work.