

# ELAN

## Multimedia Annotation Tool

Max-Planck-Institute for Psycholinguistics

<http://www.lat-mpi.eu/tools/elan>



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# ELAN

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ELAN is a software tool for the (manual) creation of textual annotations to audio and or video files.

The main, general characteristics are:

- written in the Java programming language
- stores its transcriptions in an XML format (.eaf)
- is available for Windows, Mac OS X, Linux
- its sources are available for non commercial use
- the current version 3.6.0



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## Main window

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The image below shows how a typical ELAN window could look like. In the top left corner resides the video recording that is being annotated. In this example a .wav (audio) file has been extracted from the video and its waveform is visualized in the vertical center of the screen.

Beneath the video is a rich set of controls for the media playback. In addition to the common start, stop and jump to begin or end of the file functions, there are controls for navigating through the media with different step sizes (frame, second, “page” etc).

There are several synchronized viewers available for the annotations that have been created, on multiple layers.



# Main window

The screenshot shows the Elan software interface with the following components labeled:

- video player**: The top-left window showing a video of people in a traditional setting.
- controls**: The top-right menu bar with buttons for Grid, Text, Subtitles, and Controls.
- viewers & controls**: A box encompassing the menu bar and the table below it.
- table**: A table with columns: Nr, Annotation, Begin Time, End Time, Duration. Row 8 is highlighted.
- controls**: The playback control bar with buttons for play, stop, previous, next, and volume.
- crosshair**: A vertical red line indicating the current time position in the waveform.
- waveform viewer**: The audio waveform display showing amplitude over time.
- annotations**: A box pointing to the text segments in the timeline viewer.
- tiers**: A box pointing to the list of tiers on the left side of the timeline viewer.
- timeline viewer**: The bottom section showing multiple tiers of text and time segments.

Nr	Annotation	Begin Time	End Time	Duration
1	he's speaking into his 1/2 bush knife	00:00:31.708	00:00:32.708	00:00:01.000
2	I am saying that he's talking into a half bushknife	00:00:37.141	00:00:38.501	00:00:01.360
3	everything we are saying is going inside	00:00:39.336	00:00:40.636	00:00:01.200
4	See this fellow: he seems to me like a little frog	00:00:45.426	00:00:47.106	00:00:01.680
5	it's collwecting all these things?	00:00:53.400	00:00:54.460	00:00:01.060
6	it's recording	00:00:55.521	00:00:56.056	00:00:00.535
7	You have sung them, sing them again	00:00:59.412	00:01:00.942	00:00:01.530
8	You sing those two parts of the Myââ mbwaa	00:01:01.120	00:01:02.462	00:00:01.342
9	You (P) ask him (Kp)	00:01:02.602	00:01:03.982	00:00:01.380
10	that thing, you sung those 2 parts of Myââ, sing them again	00:01:05.591	00:01:07.931	00:00:02.340
11	the next one	00:01:32.024	00:01:32.694	00:00:00.670



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## Synchronized viewers

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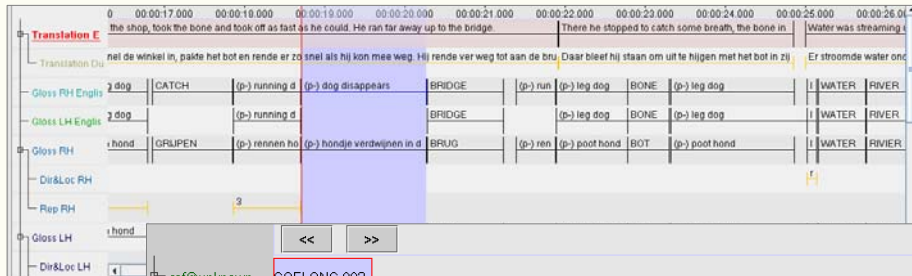
There are several synchronized viewers available for the annotations that have been created. Each viewer has its own way of indicating where the media playhead currently is, relative to the media timeline and/or the existing annotations. All viewers visualize the selected time segment and the selected, active annotation.

Annotations can be created on multiple layers, called tiers. Some viewers show the annotations of a single tier, others show the annotations of multiple tiers.

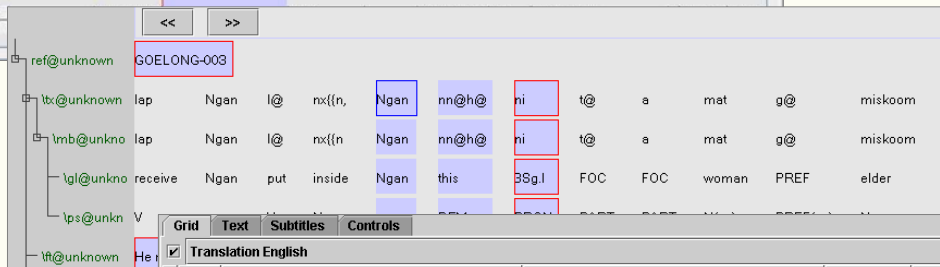
All viewers are also editors.



# Synchronized viewers



timeline viewer



interlinear viewer

Nr	Annotation	Translation Dutch	Begin Time	End Time	Duration
1	A dog was walking around. When he came acro...	Een hond liep op zijn gemak. Toen hij bij een sl...	00:00:00.630	00:00:10.230	00:00:09.600
2	Hmm, that looked good.	Hij begon te watertanden: dat ziet er lekker uit!	00:00:10.230	00:00:11.990	00:00:01.760
3	He looked around carefully, nobody there.	Hij keek voorzichtig rond, niemand te zien.	00:00:12.010	00:00:15.640	00:00:03.630
4	He ran into the shop, took the bone and took off...	Hij rende snel de winkel in, pakte het bot en ren...	00:00:15.660	00:00:21.910	00:00:06.250
5	There he stopped to catch some breath, the bon...	Daar bleef hij staan om uit te hijgen met het bot i...	00:00:21.920	00:00:24.850	00:00:02.930
6	Water was streaming under the bridge.	Er stroomde water onder de brug door.	00:00:25.000	00:00:27.830	00:00:02.830
7	The dog, still panting, looked into the water	De hond keek in het water terwijl hij nog stond n...	00:00:27.850	00:00:31.180	00:00:03.330
8	Suddenly he w				
9	The dog barked				
10	The dog saw th				
11	"That other bot				

grid viewer

text viewer

The text viewer displays a large block of text with several words highlighted in red:
 

Een hond liep op zijn gemak. Toen hij bij een slagerszaak kwam, zag hij een bot liggen. Hij begon te watertanden: dat ziet er lekker uit! Hij keek voorzichtig rond, niemand te zien. Hij rende snel de winkel in, pakte het bot en rende er zo snel als hij kon mee weg. Hij rende ver weg tot aan de brug. Daar bleef hij staan om uit te hijgen met het bot in zijn bek. Er stroomde water onder de brug door. De hond keek in het water terwijl hij nog stond na te hijgen. Opeens schok hij van wat hij zag, in het water was een andere hond. De hond blafte. De hond zag dat de andere hond ook een bot had. Hij heeft een groot bot, de mijne is maar klein. Ik wil dat bot van hem afpakken! De hond gromde naar de hond in het water: Vechten? Kom op dan! Hij gromde: "Ik wil het bot afpakken!" Hij sperde zijn bek open. Plons! Het bot viel in het water en werd door de stroom meegevoerd. Hij keek in het water, de andere hond was weg! Pas toen de golven weer minder waren, zag hij dat het gezicht in het water van zichzelf was. Oh nee, dat niet... Het bot was weg gedreven, en nu was het verdwenen. Wat stom van mij!

subtitle viewer

The subtitle viewer shows a list of subtitle tracks:
 

- Translation Dutch:** Hij rende snel de winkel in, pakte het bot en rende er zo snel als hij kon mee weg. Hij rende ver weg tot aan de brug.
- Translation English:** He ran into the shop, took the bone and took off as fast as he could. He ran far away up to the bridge.
- Gloss RH English:**
- Dir&Loc RH:**



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## Multiple videos

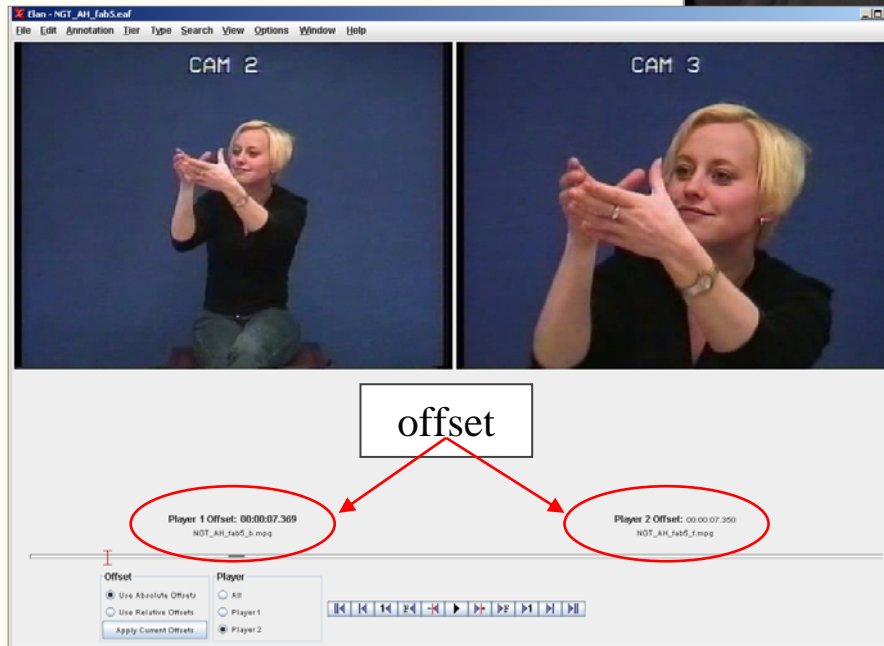
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It is possible to associate up to six video files with a single annotation document, useful for multi-camera recordings. Four of them can be displayed simultaneously in the main window. Through a menu that lists all associated videos it is possible to change the combination of displayed videos. Each video can be detached from the main window. Ideally the video files are all correctly synchronized outside ELAN; if this is not the case there is the option to synchronize the files in ELAN's media synchronization mode.



# Multiple videos

- display of up to 4 (detachable) videos



- synchronize media; determine an offset per video



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## Key concepts

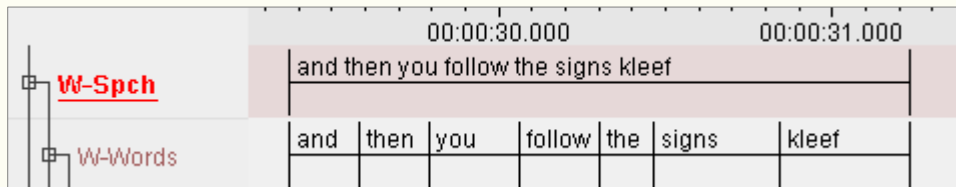
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An annotation in its most basic form is a piece of text associated with a segment of the media, identified by a begin and an end time. Furthermore, annotations can be associated with other pre-existing annotations, thus building tree-like structures of annotations. Annotations are contained in tiers.

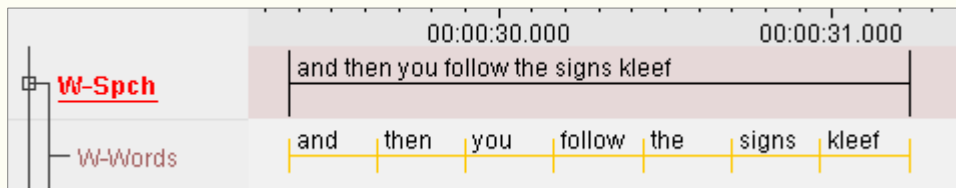
- a tier logically groups annotations that share the same constraints on structure, content and / or time alignment characteristics
- tiers can be part of a tier hierarchy, i.e. a tier can have a parent tier and dependent tiers
- The constraints on the relations between tiers and annotations are stored in so called linguistic type objects



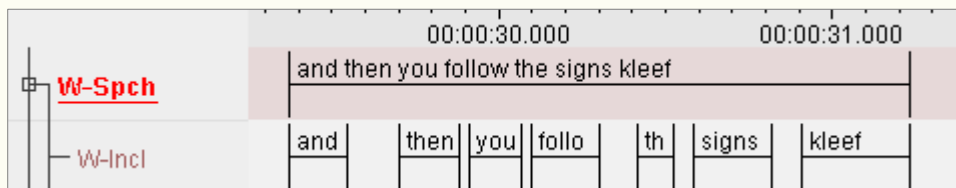
# Inter-tier relations



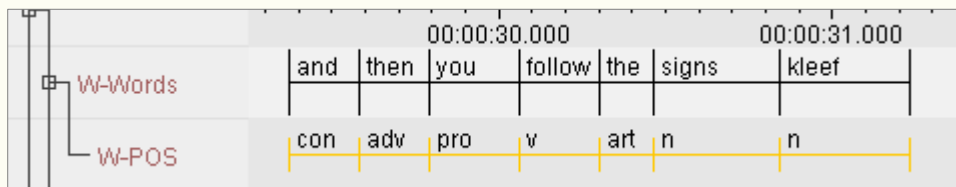
- "Time Subdivision"  
Time aligned subdivision of parent interval, no gaps



- "Symbolic Subdivision"  
Ordered, symbolic subdivision of parent interval



- "Included In"  
Time aligned subdivision of parent interval, gaps are allowed



- "Symbolic Association"  
One-to-one association with the parent annotation



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## Controlled Vocabularies

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Controlled Vocabularies are user definable lists of annotation values that can be applied to annotations on tiers that are associated with a Controlled Vocabulary.

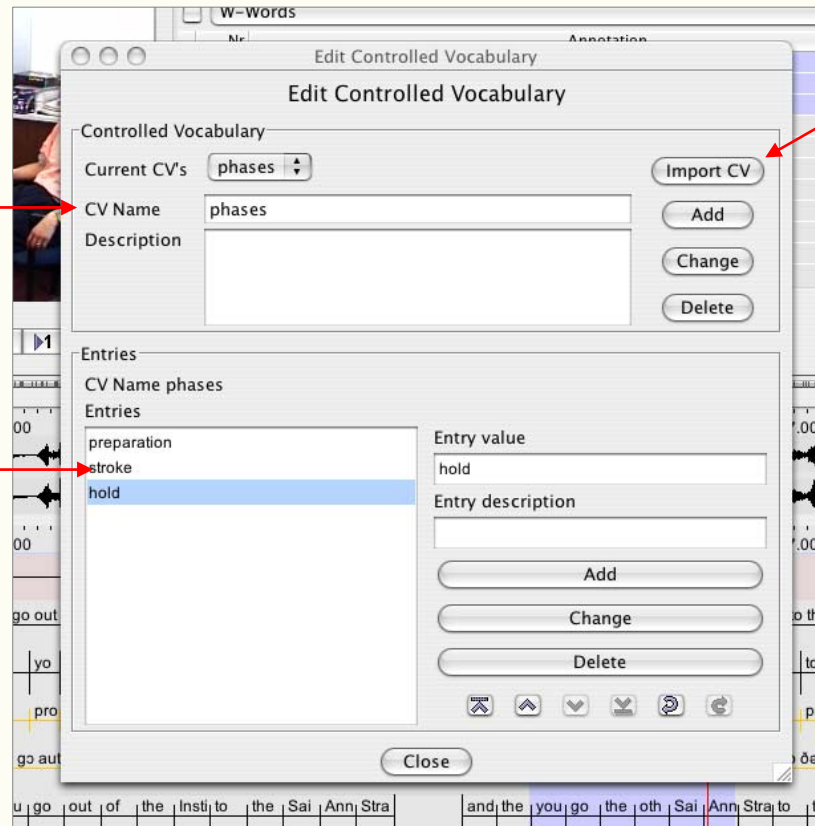
Any number of Controlled Vocabularies can be created. In this way it is possible to define a complete coding scheme by creating a Controlled Vocabulary for each type of feature or events that needs to be annotated.

The entries in a Controlled Vocabulary consist of a value or label and optionally a short description. The entries are listed in ELAN's user interface the moment an annotation is created or edited on a tier that is associated with the Controlled Vocabulary.



# Controlled Vocabularies

- user definable lists of possible annotation values

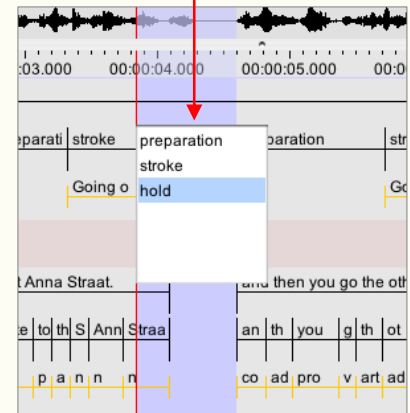


CV name

CV entries

import a CV

select an entry from the list



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# Templates

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In general a new document is created by selecting one or more media files to transcribe and then defining linguistic types, tiers and eventually controlled vocabularies. The most common way to create annotations is to identify a segment where something of interest occurs, create a selection of this segment, e.g. by dragging with the mouse, and then choose “New annotation here” on the tier of choice.

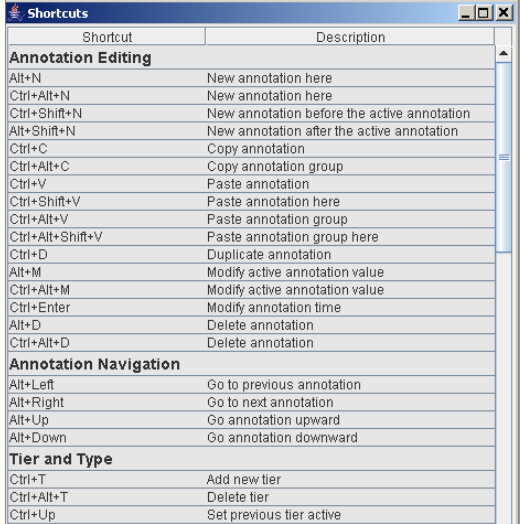
It is possible to save a document as a template.

Template documents contain the complete document setup, i.e. all defined linguistic types, tiers and controlled vocabularies. New documents based on a template can be created by selecting the media file(s) and the template file in the “File -> New” window.

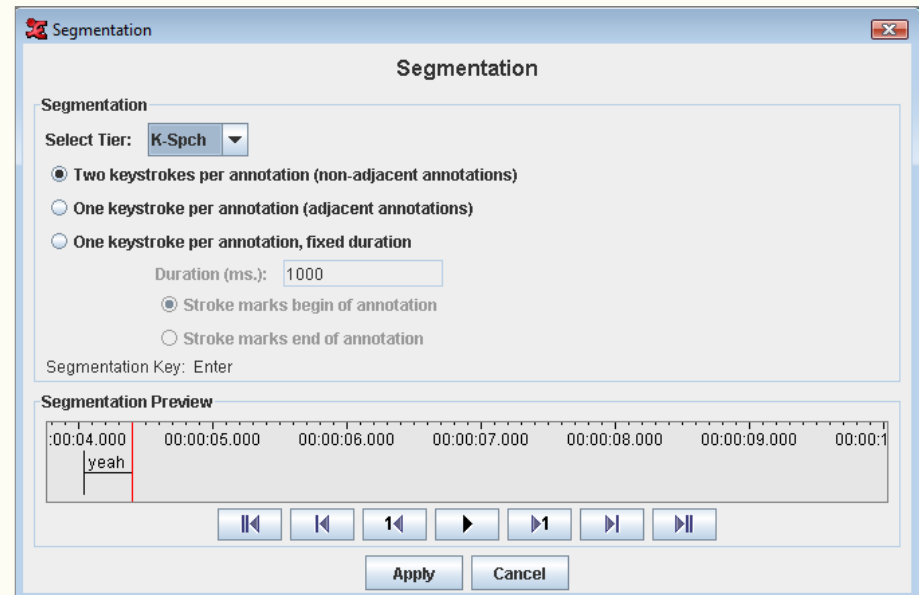


# Editing

- multiple undo / redo
- copy, duplicate, paste annotations
- many keyboard shortcuts
- special annotation creation modes
  - tokenizing
  - filtering
  - semi automatic segmentation
  - annotations from overlaps



Shortcut	Description
<b>Annotation Editing</b>	
Alt+N	New annotation here
Ctrl+Alt+N	New annotation here
Ctrl+Shift+N	New annotation before the active annotation
Alt+Shift+N	New annotation after the active annotation
Ctrl+C	Copy annotation
Ctrl+Alt+C	Copy annotation group
Ctrl+V	Paste annotation
Ctrl+Shift+V	Paste annotation here
Ctrl+Alt+V	Paste annotation group
Ctrl+Alt+Shift+V	Paste annotation group here
Ctrl+D	Duplicate annotation
Alt+M	Modify active annotation value
Ctrl+Alt+M	Modify active annotation value
Ctrl+Enter	Modify annotation time
Alt+D	Delete annotation
Ctrl+Alt+D	Delete annotation
<b>Annotation Navigation</b>	
Alt+Left	Go to previous annotation
Alt+Right	Go to next annotation
Alt+Up	Go annotation upward
Alt+Down	Go annotation downward
<b>Tier and Type</b>	
Ctrl+T	Add new tier
Ctrl+Alt+T	Delete tier
Ctrl+Up	Set previous tier active



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# Search

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ELAN provides several search options. First of all there is a search function that only searches the currently opened file. The query is based on the structure of the transcription, i.e. it can take relations between tiers as well as between annotations on the same or on related tiers into account.

The multiple file search functions execute the query in all documents that have been added to a domain by the user. Complex queries can be created based on temporal relations between annotations or the position of an annotation in a sequence of annotations.

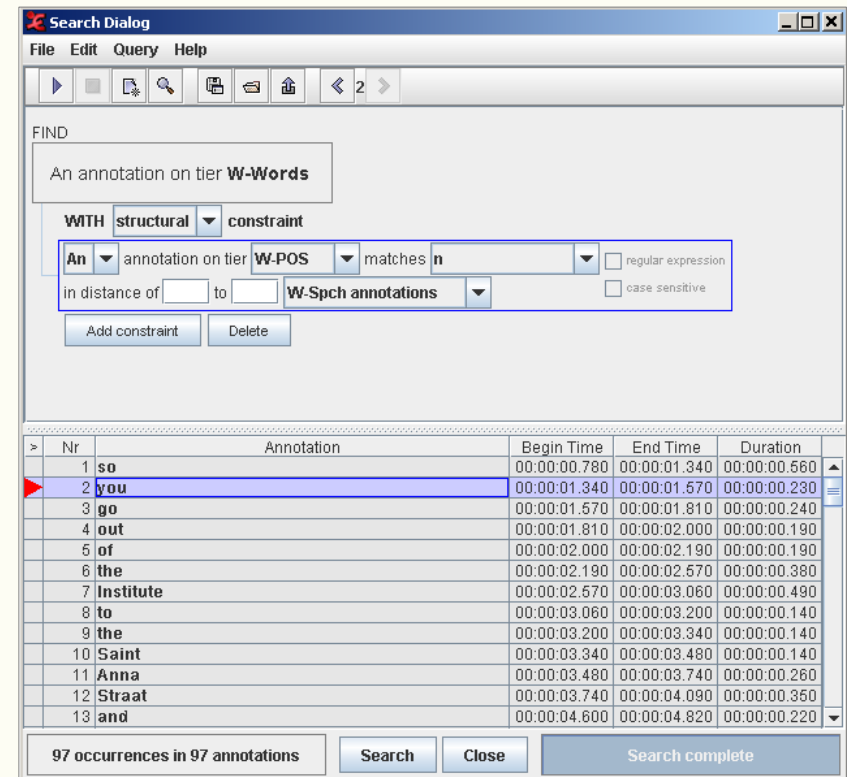
The results can be exported to a tabular format for further (statistical) analysis.

ELAN can also produce and export some basic statistics for all tiers in a transcription file.



# Single file search

- create complex search queries
- combination of temporal and structural constraints
- use of regular expressions
- save and load queries
- export result to tab-delimited text
- search and replace



The screenshot shows a 'Search Dialog' window with a menu bar (File, Edit, Query, Help) and a toolbar. The 'FIND' section contains the search query: 'An annotation on tier W-Words'. Below this, the search criteria are set to 'WITH structural constraint'. The search term is 'An' (with a dropdown arrow), the annotation type is 'W-POS', and it matches 'n'. There are checkboxes for 'regular expression' and 'case sensitive'. The search is performed on 'W-Spch annotations'. Below the search criteria are 'Add constraint' and 'Delete' buttons.

Nr	Annotation	Begin Time	End Time	Duration
1	so	00:00:00.780	00:00:01.340	00:00:00.560
2	you	00:00:01.340	00:00:01.570	00:00:00.230
3	go	00:00:01.570	00:00:01.810	00:00:00.240
4	out	00:00:01.810	00:00:02.000	00:00:00.190
5	of	00:00:02.000	00:00:02.190	00:00:00.190
6	the	00:00:02.190	00:00:02.570	00:00:00.380
7	Institute	00:00:02.570	00:00:03.060	00:00:00.490
8	to	00:00:03.060	00:00:03.200	00:00:00.140
9	the	00:00:03.200	00:00:03.340	00:00:00.140
10	Saint	00:00:03.340	00:00:03.480	00:00:00.140
11	Anna	00:00:03.480	00:00:03.740	00:00:00.260
12	Straat	00:00:03.740	00:00:04.090	00:00:00.350
13	and	00:00:04.090	00:00:04.820	00:00:00.730

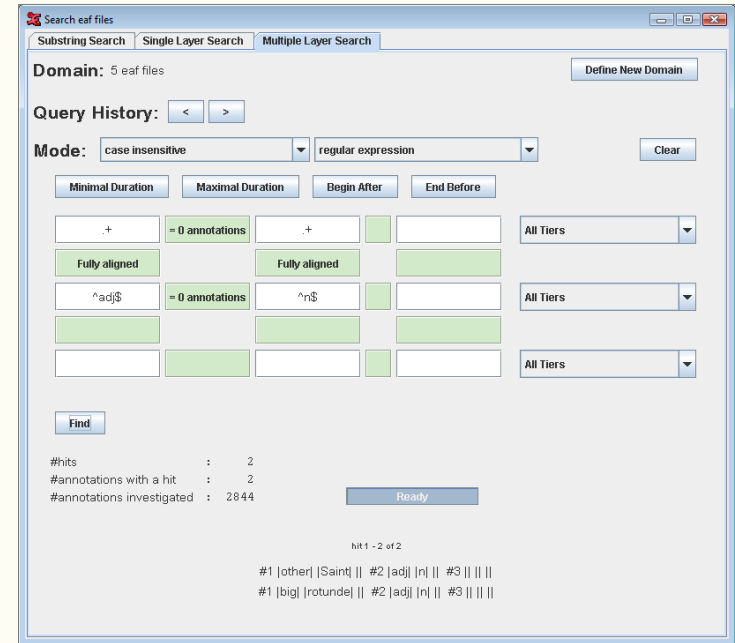
97 occurrences in 97 annotations

Search Close Search complete



# Multiple file search

- add ELAN files to a 'basket'
- simple and structured search: several matching types, in selected set of tiers
- concordance and frequency view
- export results to tab-delimited text file
- open a file by a click on a result



Nr	File	Tier	Before	Annotation	After	Begin Time	End Time	Duration
1	elan-demo	W-RGMe		Going out of the Institute	Going out of MPI to Saint	00:00:00.780	00:00:04.000	00:00:03.220
2	elan-demo	W-RGMe	Going out of the...	Going out of MPI to Saint	Going along St. Anna Street	00:00:04.600	00:00:10.000	00:00:05.400
3	elan-demo	W-RGMe	Going out of M...	Going along St. Anna Street	Going along St. Anna Street	00:00:31.320	00:00:31.000	00:00:00.000
4	elan-demo	W-RGMe	Going along St...	Going along St. Anna Street	A roundabout	00:00:32.379	00:00:34.000	00:00:01.621
5	elan-demo	W-RGMe	A roundabout	Going to the direction of	Going along Oranj...	00:00:01.570	00:00:01.000	00:00:00.430
6	elan-demo	W-RGMe	Going to the dir...	Going along Oranje Singel	Going to the direct...	00:00:05.370	00:00:05.000	00:00:00.370
7	elan-demo	W-RGMe	Going along Or...	Going to the direction of	Going down	00:00:31.320	00:00:31.000	00:00:00.320
8	elan-demo	W-RGMe	Going to the dir...	Going down	a roundabout	00:00:00.630	00:00:10.000	00:00:09.370
9	elan-demo	W-RGMe	a roundabout	Going down	Going down	00:00:00.630	00:00:10.000	00:00:09.370
10	elan-demo	W-RGMe	Going down	Going down	a roundabout	00:00:31.370	00:00:33.000	00:00:01.630
11	elan-demo	W-RGMe	a roundabout	Going down	Going down	00:00:31.370	00:00:33.000	00:00:01.630
12	elan-demo	W-RGMe	Going down	Going down	Going to Kleve	00:00:33.820	00:00:35.000	00:00:01.180
13	elan-demo	W-RGMe	Going down	Going to Kleve	Going to Kleve	00:00:35.280	00:00:38.000	00:00:02.720
14	rabbitENGO1_test	speech		(going) hundred and eighty	backwards and for...	00:00:43.490	00:00:48.000	00:00:04.510
15	rabbitENGO1_test	speech	turning around i...	it's going	but meandering fr...	00:00:58.850	00:01:01.000	00:00:02.150
16	rabbitENGO1_test	speech	but meanderin...	(going) forward to it	for a few steps	00:01:01.570	00:01:11.000	00:00:09.430
17	rabbitENGO1_test	speech	turning round b...	(going) in a kind of loop	It's coming down i...	00:00:00.840	00:00:01.000	00:00:00.160
18	rabbitENGO1_test	speech	but this time it's...	(going) round three	as it's moving roun...	00:00:01.920	00:00:04.000	00:00:02.080
19	rabbitENGO1_test	speech		(going) hundred and eighty	backwards and for...	00:00:10.430	00:00:11.000	00:00:00.570
20	rabbitENGO1_test	speech	turning around i...	it's going	but meandering fr...	00:00:15.870	00:00:16.000	00:00:00.130
21	rabbitENGO1_test	speech	but meanderin...	(going) forward to it	for a few steps	00:00:17.860	00:00:18.000	00:00:00.140
22	rabbitENGO1_test	speech	turning round b...	(going) in a kind of loop	It's coming down i...	00:00:18.710	00:00:20.000	00:00:01.290
23	rabbitENGO1_test	speech	but this time it's...	(going) round three	as it's moving roun...	00:00:21.890	00:00:22.000	00:00:00.110



# Statistics

- basic statistics for the annotations of a selected tier or for all tiers in the transcription
- save as tab-delimited text file

The left screenshot shows the 'Annotations' tab of the 'Annotation Statistics' window. It displays a table of statistics variables for various annotations. The right screenshot shows the 'Tiers' tab, displaying a table of statistics variables for different tiers.

**Annotation Statistics - Annotations**

Annotation	Occurrences	Frequency	Average
(g-) "kom maar...	3	0.0372023809...	0.3833
(g-) pu	1	0.0124007936...	0.52
(p-) drijven	2	0.0248015873...	1.545
(p-) groot bot	1	0.0124007936...	1.51
(p-) hondje ver...	1	0.0124007936...	1.56
(p-) klauw hond	3	0.0372023809...	0.9833
(p-) klein bot	1	0.0124007936...	0.65
(p-) lopen hond	1	0.0124007936...	2.66
(p-) poot hond	6	0.0744047619...	1.1816

**Annotation Statistics - Tiers**

Tier	Number of ...	Minimal Du...	Maximal Du...	Average D...	Median Dur...	Total Anno...	Latency
Gloss1	191	0.38	4.065	1.504021	1.332	287.268	14.74
Gloss2	90	0.28	3.15	1.2127	1.107	109.143	31.708
Kp	308	0.145	9.2	0.956321	0.722	294.547	4.95
Pius	356	0.25	9.81	1.375829	1.189	489.795	3.1
K	127	0.28	5.525	1.008803	0.83	128.118	1.38
Ricky	23	0.31	2.82	0.939435	0.605	21.607	257.721
man outsid...	103	0.27	2.665	0.872913	0.629	89.91	31.158
child 1	13	0.34	2.055	1.128692	0.99	14.673	15.95
loudspeaker	3	3.069	4.308	3.812333	4.06	11.437	8.353
boy 1	42	0.38	3.74	1.238738	1.205	52.027	32.988
child 2	5	0.4	2.06	1.08	0.52	5.4	32.988
boy 2	2	0.57	1.88	1.225	1.225	2.45	135.166
boy 3	9	0.52	3.74	1.315222	0.93	11.837	178.301



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## Import / export

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For compatibility with some other transcription tools import and export functions have been implemented for their file formats. The export to tab-delimited text files is often used to transfer information to spreadsheet applications, like Excel, for further processing.

For presentation of the annotation data outside of ELAN the html export can be used and for the creation of subtitled videos there is the export to several subtitle text formats.



## Import / export

format	import	export
Shoebox/Toolbox (.txt)	✓	✓
Transcriber (.trs)	✓	✓
Chat (.cha)	✓	✓
Praat (.TextGrid)	✓	✓
CSV/tab-delimited text	✓	✓
Interlinear text		✓
HTML		✓
Wordlist		✓
Subtitles (SMIL, QT, SubRip)		✓

