

Annotating data with ELAN

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Introduction: What is ELAN

- ELAN is a professional tool for the creation of complex annotations on video and audio resources.
- Allows an unlimited number of annotations to audio and/or video streams.
- An annotation can be a sentence, word or gloss, a comment, translation or a description of any feature observed in the media.
- Annotations can be created on multiple layers, called tiers, which can be hierarchically interconnected.

Introduction: What is ELAN

- ELAN is a free software and the sources are available for non-commercial use.
- It is written in the Java programming language which means that, in principle, it runs on Windows, Mac OS X and Linux.
- It is developed by the Max Planck Institute for Psycholinguistics, Nijmegen, Netherlands. The development team is very reactive.
- You can download the software and documentation on their website: <http://tla.mpi.nl/tools/tla-tools/elan/>

Create a new transcription

1. "File > New..."
 2. Browse to the audio and video file(s)
 3. Click the " >> " button to add media file(s): ELAN can visualize one audio file and up to four video files
 4. Click "OK".
- "Template" radio button: A predefined set of tiers and their optional corresponding limited annotations values ("Controlled Vocabulary") can also be imported from this window.

The ELAN interface (1/2)

- Video viewer: ELAN uses existing players such as Windows Media Player, QuickTime for Java or Java Media Framework. It can read a wide variety of audio and video formats. If you find it too small, you can detach and resize it.
- Specific viewers for annotations:
 - Grid: table showing start and end times of annotations, plus their content;
 - Text: shows annotations of a selected tier as running text;
 - Subtitles: shows annotations for selected tiers simultaneously with playback;
 - Lexicon ;
 - + (speed and volume) Controls.

The ELAN interface (2/2)

- Media and selection control buttons.
- Waveform viewer: only appears when an audio file is added to the project - it won't appear for audio included in a video file.
- Timeline viewer: showing all tiers and their annotations in a horizontal time-based axis.



Tip: You can change the interface language: "Options > Language".

Video viewer

Specific viewer for annotations ("Grid" selected here)

The screenshot shows a software interface with a menu bar (File, Edit, Annotation, View, Options, Window, Help) and a toolbar. The main area is divided into several sections:

- Video viewer:** A window on the left showing a video of a person in a lecture hall.
- Annotations table:** A table with columns for 'Nr', 'Annotation', 'Begin Time', 'End Time', and 'Duration'. The 'Grid' tab is selected. The table contains 10 rows of data.
- Media and selection control buttons:** A row of buttons for playback (play, stop, previous, next, first, last, home, end) and selection (selection, loop, volume).
- Waveform viewer:** A horizontal waveform plot showing audio amplitude over time.
- Timeline viewer:** A vertical timeline with multiple tracks for different annotations: dyn_soprano, dyn_alto, dyn_tenor, dyn_bass, gesture_NDH, handshape, palm_orientati, location, movement, and gaze.

Media and selection control buttons

Waveform viewer

Timeline viewer

Create a new annotation

1. Double-click on the name of the tier in the Timeline to activate the tier where you want to create an annotation (should be "default" for you)
2. Select a time interval: left-click at the beginning of the interval and shift+left-click at the end
3. "Annotation > New Annotation Here"
4. Validate: ctrl+Enter (cmd+Enter on Mac OS).



Tip: Shift a boundary: alt+left-click (opt+left-click).

Create a new tier (1/3)

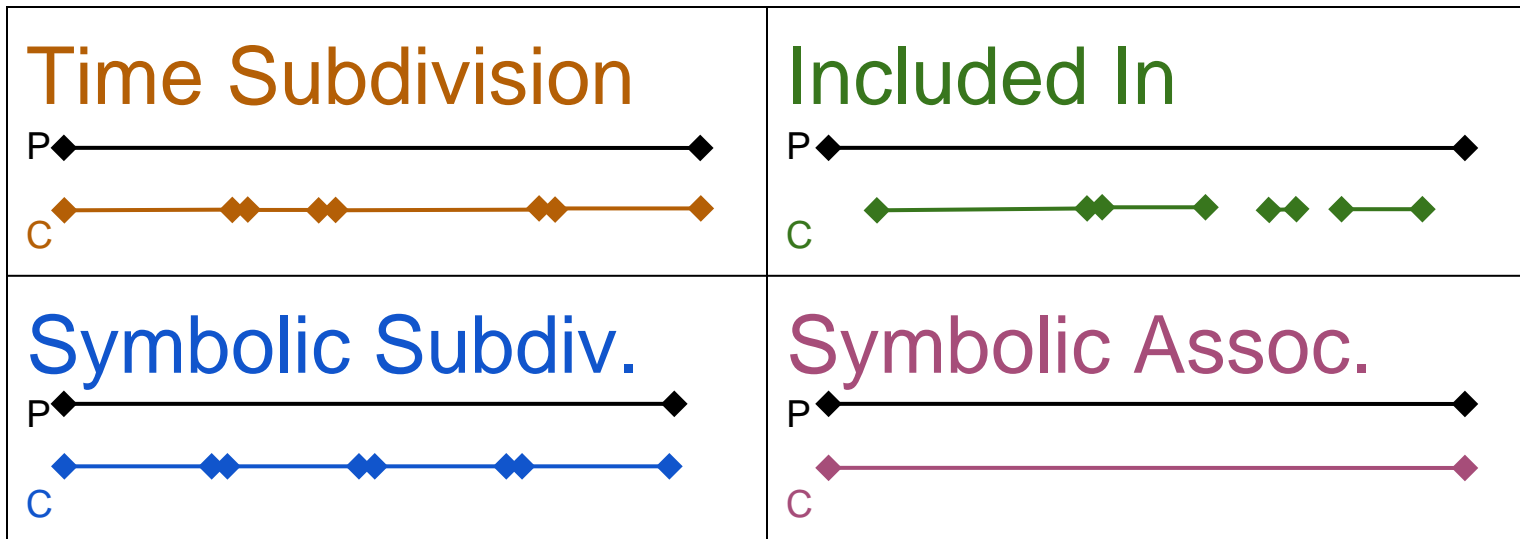
1. "Tier > Add New Tier..."
 2. Two types of tiers:
 - Independent tiers which contain annotations that are linked to a time interval.
"Parent Tier > none"
 - Referring tiers which contain annotations that are linked to annotations on another tier called "Parent Tier".
- Changes made on a parent tier will also affect its child tiers

Create a new tier (2/3)

- Annotations on a child tier are aligned with annotations on a parent tier following one of the four stereotypes (other than the "None" stereotype):
 - "Time Subdivision" (annotations on the parent tier can be-subdivided into smaller units - no time gaps allowed)
 - "Included In" (annotations are included in the borders of the parent tier, time gaps are allowed)
 - Ex: sentence on a parent tier split up into words (gaps = silence)
 - "Symbolic Subdivision" (similar to "Time Subdivision" except that smaller units are not linked to a time interval)
 - Ex: word on a parent tier subdivided into individual morphemes
 - "Symbolic Association" (one-to-one correspondence)
 - Ex: one sentence on a parent tier has exactly one free translation.

Create a new tier (3/3)

- The four stereotypes used to align annotations on a child tier with annotations on a parent tier can be summarized as follows:



Save your work (1/2)

- Save your annotation file:
 - "File > Save" (.eaf file)
 - Time-based data model
 - XML (eXtensible Markup Language) format
 - Textual content of annotations in Unicode.
- Save your work as a template:
 - "File > Save as Template" (.etf file)
 - Predefined set of tiers including their linguistic type
 - Contains Controlled Vocabularies (predefined values a user can choose from when editing an annotation).

Save your work (2/2)

- A display preferences for used file(s) is automatically created when saving (.pfsx file).
- Nota: there is a multiple undo/redo.
- ★ Set up a time in "File > Automatic Backup", as sometimes ELAN crashes (rarely, but it happens...).

Import / Export


- "File > Import" / "File > Export" from / to a wide variety of other transcription formats (CLAN, Praat, Toolbox, Transcriber,...).
- Import from any kind of data in a CSV file (similar to Excel files) "File > Import > CSV / Tab-delimited Text File...".
- "File > Export As" HTML, SMIL, subtitles, filmstrip image, image from ELAN window (right-click in the Video viewer to "Save Current Frame As Image...").
- "File > Print Preview" to set layout before printing the annotations.

Search Function

- Multi-tier regular expression search, within a single document or in a selection of .eaf files
 - "Search > Find (and Replace)...".
- All queries can be saved (.eaq file).
- Results can be exported as .csv or .html files
 - "Query > Export" (in the "Search Dialog" window).

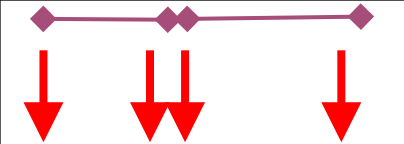
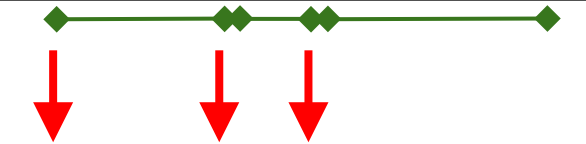
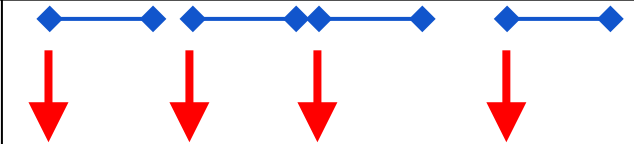


Media Synchronization Mode (multicamera)

- "Edit > Linked Files..." (up to 4 video files).
- "Options > Media Synchronization Mode".
- The reference is the file that begins last.
- Adjust then "Apply Current Offsets".
-  Each video can be integrated in the main window or displayed in its own resizable window.

Segmentation Mode (on-the-fly segmentation)

- "Options > Segmentation Mode".
- Activate the concerned tier by double-clicking its name in Timeline.
- Configure the keystroke type:

* Two	* One (adj.)	* One (fixed dur.)
		

- Play the media then press "Enter" to add boundaries or create new segments.

So far, you've seen how to:

- Create new transcriptions, annotations, tiers.
- Navigate the interface interface and view it in the language of your choice.
- Save your work.
- Import / Export from/to a wide variety of formats.
- Use the powerful Search Function.
- Use the Media Synchronization & Segmentation Modes.

Let's move on to serious things now:

TEMPLATES (a predefined set of tiers and their optional corresponding limited annotations values - called "**Controlled Vocabulary**" (**CV**)),
and LINGUISTIC TYPES (LT = number of constraints for all tiers assigned to that type = Stereotype+Controlled Vocabulary).

Steps to build a template

1. List your tiers. Is each one a parent? a child?
2. Decide stereotype ("none" only for super-parent)
3. Tier: "Controlled Vocabulary" or not?
 - If yes: create the "Controlled Vocabulary":
"Edit > Edit Controlled Vocabularies..."
4. Create a "Linguistic Type" (and name it)
"Type > Add New Linguistic Type...":
Select a "Stereotype" and "Controlled Vocabulary"
5. If necessary, for each tier: apply parent + LT.

Acknowledgements and useful links

I would like to thank my colleague [Dominique Boutet](#) for helping me.

Interesting websites:

ELAN: <http://tla.mpi.nl/tools/tla-tools/elan/> (download, mailing list, ...)

and <http://tla.mpi.nl/tools/tla-tools/elan/thirdparty/> (templates, scripts, ...)

Comparison of multimodal annotation tools:

(Anvil, ELAN, EXMARaLDA, TASX, MacVisTA)

<http://www.gespraechsforschung-ozs.de/heft2006/tb-rohlfing.pdf>

Sonic Visualiser: <http://www.sonicvisualiser.org/>

Vamp plugins: <http://www.vamp-plugins.org/>

Praat: <http://www.fon.hum.uva.nl/praat/>

Kinovea (Windows): <http://www.kinovea.org/en/>