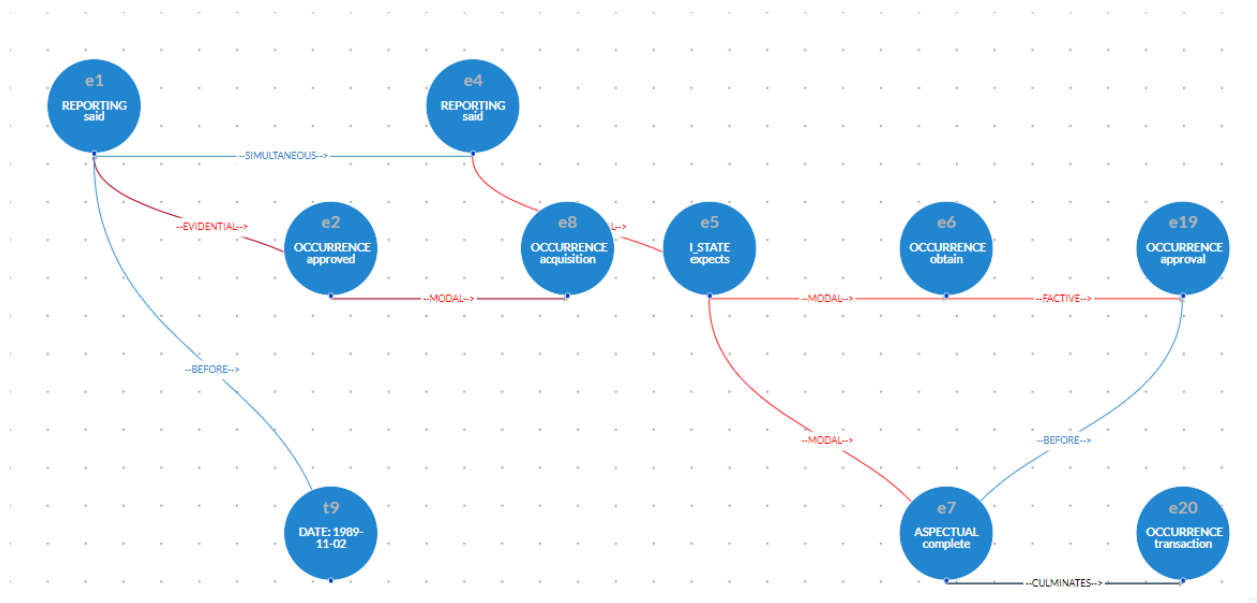


jTLEX 3.0: Visualization for TLEX Algorithm

User Manual



USER GUIDE
FIU Capstone Summer 2021

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1- Input TimeML Text

To analyze TimeML annotated text, first **click the TimeML Body** button in the home page.

The screenshot shows the homepage of the TLEX: Timeline Extraction tool. At the top, there is a navigation bar with links: 'About', 'Dev JSON', 'Time ML Body' (highlighted with a red box), and 'Time ML File'. Below the navigation bar, the main content area has a dark blue background. It features the title 'TLEX: Timeline Extraction' and a brief description: 'Qualitative temporal graphs that are derived from annotations on text—e.g., TimeML annotations—explicitly reveal only partial orderings of events and times. For many purposes, however, a total ordering (i.e., a timeline) is more useful. TLEX adapts prior work on solving point algebra problems to the task of extracting multiple timelines from TimeML annotated texts and demonstrates, for the first time, an exact, end-to-end solution.' Below the text is a flowchart illustrating the process: 'TimeML Annotated File' leads to 'Build TimeML Graph', which leads to 'Partition subordination subgraphs'. From 'Partition subordination subgraphs', the flow goes to 'Detect Inconsistencies in TimeML graph', then to 'Solve TCSP and Extract Timelines', then to 'Transform into Temporal Constraint Satisfaction Problem (TCSP)', and finally to 'Detect Indeterminacies in TimeML graph'.

In the TimeML Body page, (1) **take the selected text and paste it in the highlighted textbox.** Then (2) **click the Analyze with TLEX** button for analysis.

The screenshot shows the 'Time ML Body' page. At the top, there is a 'Show Menu' button. Below it, the title 'TLEX: Timeline Extraction' is followed by the same description as in the previous screenshot. Below the description is a text input field with a red border. The input field contains the following XML snippet:

```
<TLINK id="162" relType="AFTER" eventInstanceID="ei426" relatedToEventInstance="ei425">
<ALINK id="146" relType="INITIATES" eventInstanceID="ei396" relatedToEventInstance="ei395">
</TimeML>
```

 Below the input field, there is a button labeled 'Analyze with TLEX' (highlighted with a red box) and a 'Hide Section' button.

2- Input TimeML File

To analyze a TimeML file, first **click the TimeML File** button in the home page.

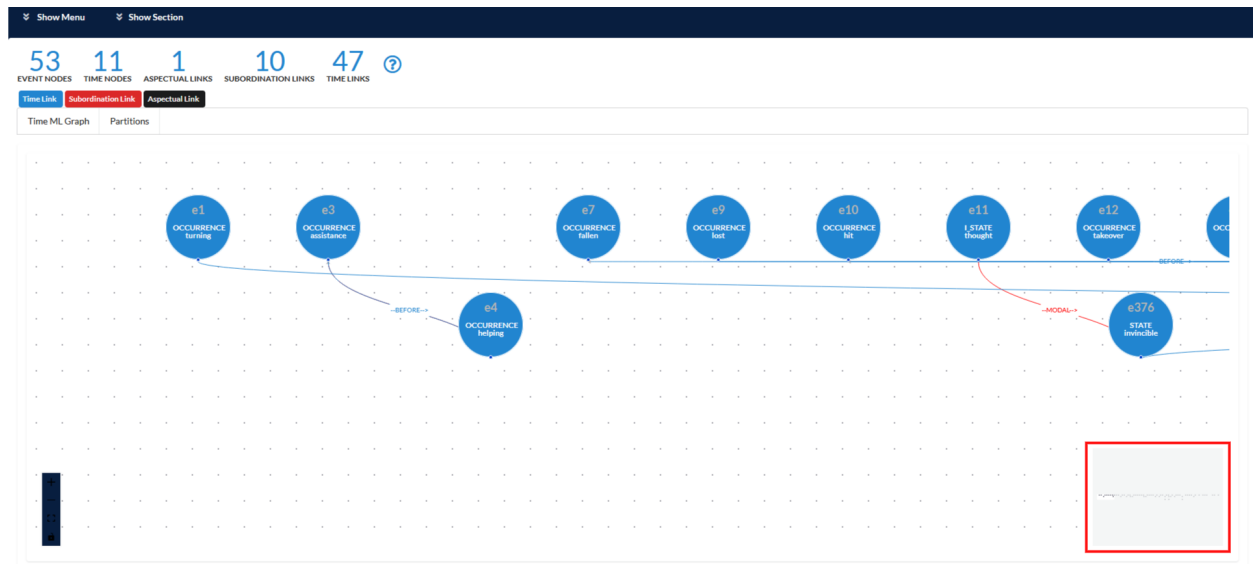
The screenshot shows the homepage of the TLEX: Timeline Extraction tool, similar to the first screenshot. The navigation bar has links: 'About', 'Dev JSON', 'Time ML Body', and 'Time ML File' (highlighted with a red box). The main content area has a dark blue background with the title 'TLEX: Timeline Extraction' and the same description. Below the description is the same flowchart as in the first screenshot: 'TimeML Annotated File' leads to 'Build TimeML Graph', which leads to 'Partition subordination subgraphs'. From 'Partition subordination subgraphs', the flow goes to 'Detect Inconsistencies in TimeML graph', then to 'Solve TCSP and Extract Timelines', then to 'Transform into Temporal Constraint Satisfaction Problem (TCSP)', and finally to 'Detect Indeterminacies in TimeML graph'.

Next, (1) **click the Browse button** and select the file you wish to analyze, then (2) **click Upload** to generate the TimeML Graph.



3- Navigate Graph

Once the TimeML Graph has been generated you are forwarded to the *Main Graph View*, and can navigate through it by **clicking and dragging your cursor through the dotted area**. You can also use the minimap (highlighted on the bottom right) to get a general view of the Graph.



General statistics are displayed on top of the page:



This legend indicates the color of each link and the type of link they represent:



4- Access TimeML Graph component's details

From the Main Graph View, **click the question mark icon**, to access more details about the Graph components.



The details will appear in a modal, like so:

About TimeML Components

Event Node

A Event Node represent situations that happen or occur. Also represent those predicates describing states, or circumstances in which something obtains or holds true.

Time Node

A Time Node represent when a situation is happening. Each node is a representation of a temporal expression.

Time Link

Time Links represent the temporal relationship between events and times.

Subordination Link

Subordination Links are used for contexts introducing relations between two events. Subordination Links do not necessarily introduce a temporal relationship.

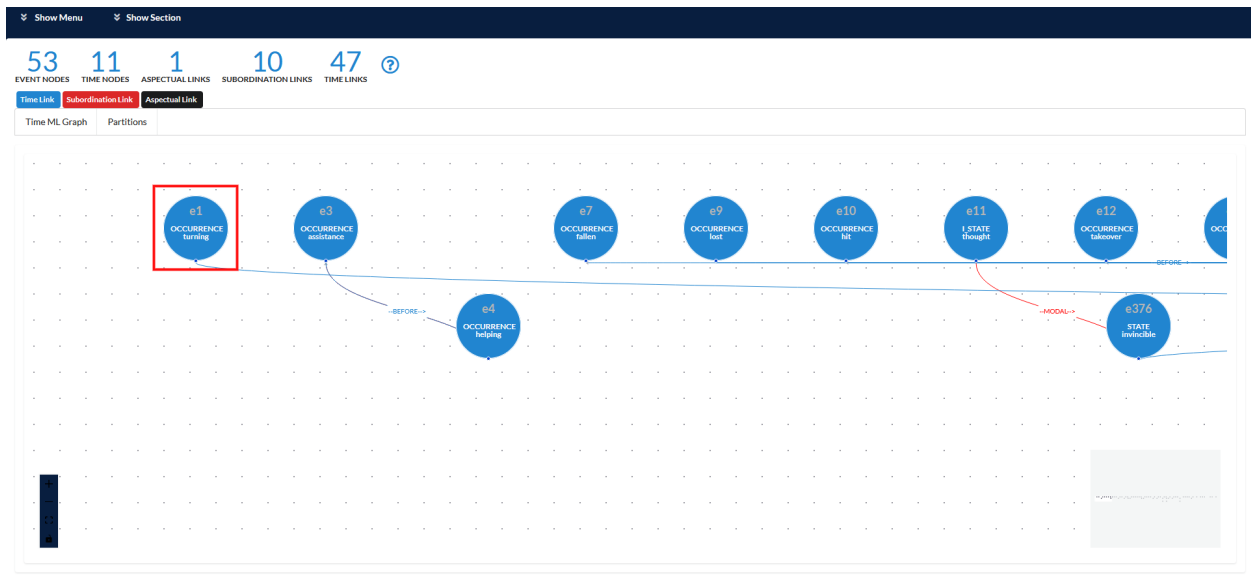
Aspectual Link

Aspectual Links represent the relationship between an aspectual event and its argument event.

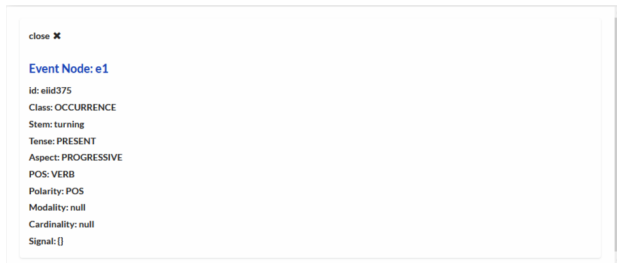
Got it! ✓

5- Access nodes' information

From the Main Graph View, **click any node you wish to view**, to access more details about it.

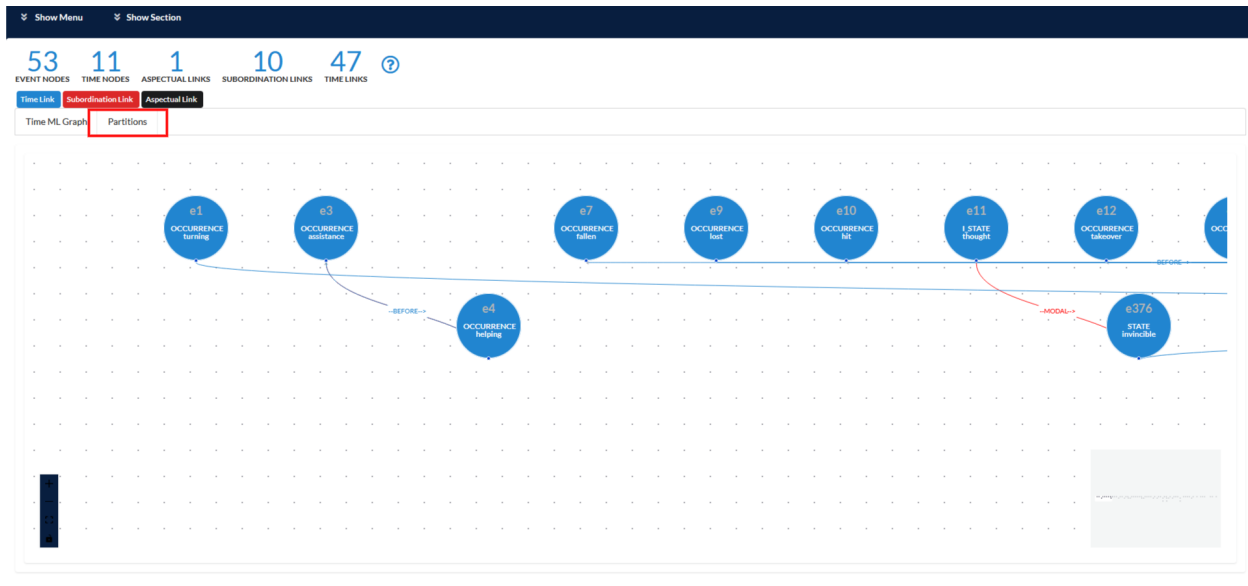


The nodes' information will appear in a modal, like so:

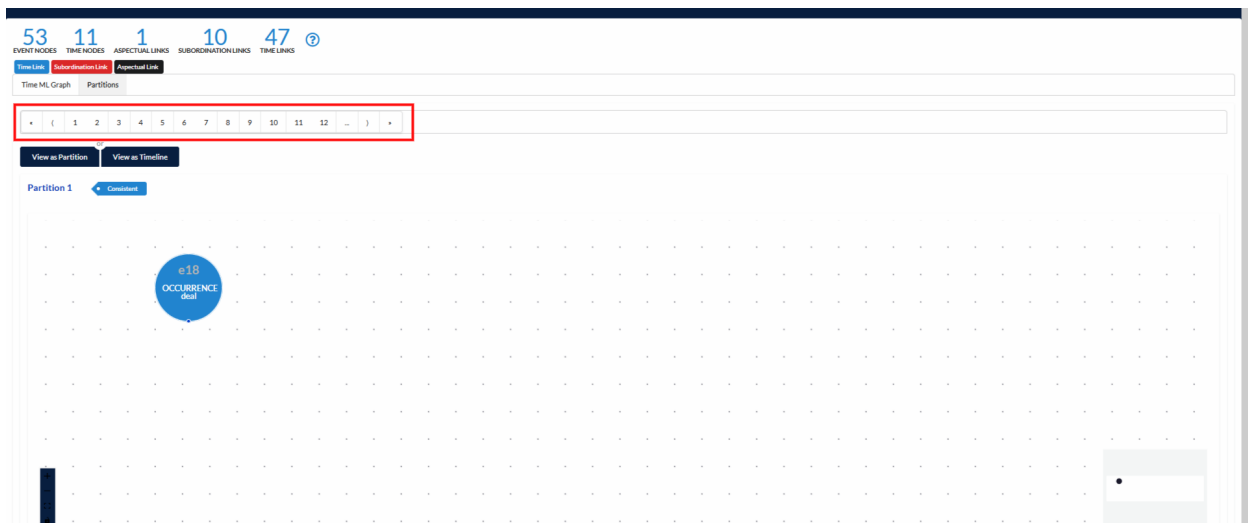


6- Navigate and Analyze Partitions

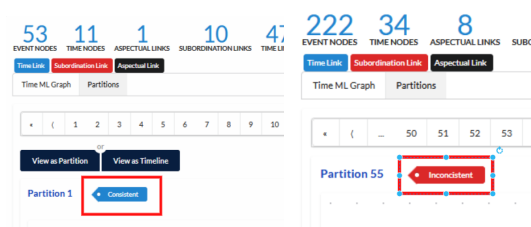
From the Main Graph View, **click the Partitions button**, to access the graph partitions.



You can use the list at the top of the page to navigate through the different partitions. **Each number is a partition index.** If the partition that you wish to view is not in the current list, you can **display the next partition in the list** by clicking the arrow button. Clicking the double arrows button will **take you to the end of the list**.

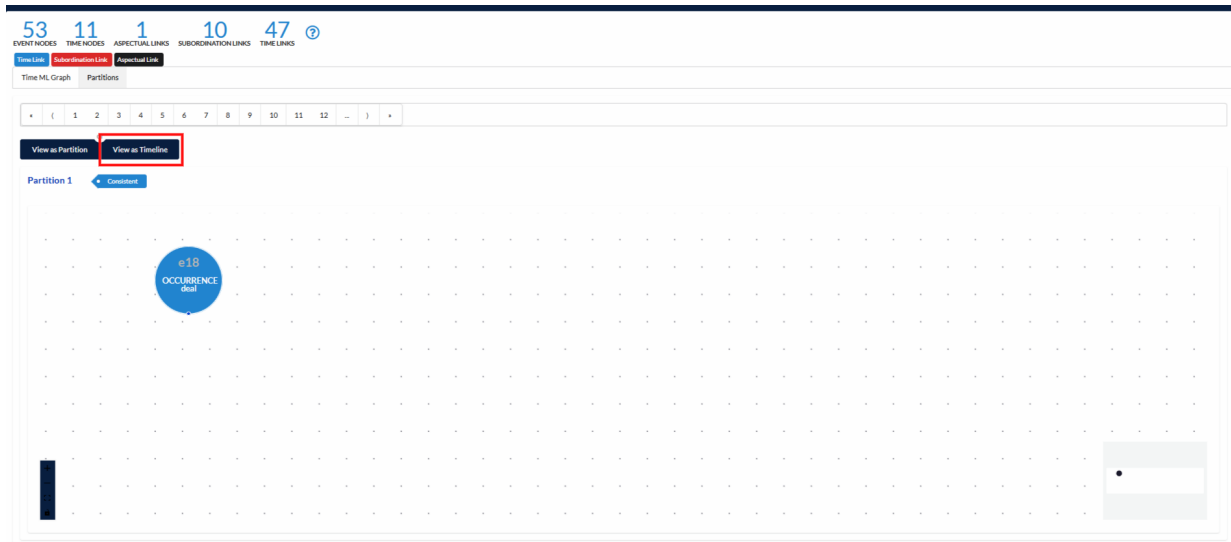


The tag next to the partition index indicates whether it is consistent or not.



7- Examine a Partition's Timeline

Follow the steps in section 6 Navigate and Analyze Partitions. Then to view the Partition's timeline click the **View as Timeline** button



The timeline will be expanded horizontally (shown in red in the following figure), while the time points contained in each moment will cascade vertically. These nodes can be clicked on to obtain the details.

