NARRATIVE EVENT AND TEMPORAL RELATION VISUALIZATION TOOL

Sean P. Finan¹, Piet C. De Groen², Guergana K. Savova¹

¹Children's Hospital Boston Informatics Program, Harvard Medical School, Boston, MA;
²Mayo Clinic College of Medicine, Mayo Clinic, Rochester, MN
This prototype is being tested as part of the Temporal Histories of Your Medical Event (THYME) project\(^1\)

It will soon be integrated into Apache clinical Text Analysis and Knowledge Extraction System (cTAKES)\(^2\), and as such

It will be available through the Informatics for Integrating Biology & the Bedside (I2B2) platform\(^3\)

Use of the tool will also play a part in an upcoming project in the oncology domain funded by the National Cancer Institute (NCI)

\(^1\) [http://thyme.healthnlp.org](http://thyme.healthnlp.org)
\(^2\) [http://ctakes.apache.org](http://ctakes.apache.org)
\(^3\) [http://www.i2b2.org](http://www.i2b2.org)
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  – Sean Finan, Lead Developer¹

¹ sean.finan@tch.harvard.edu
Many clinical events are available only in an unstructured, free text format – the clinical narrative

Recent advances in Natural Language Processing (NLP) allow automated extraction of clinical events from the narrative

NLP methods can also extract time expressions and the temporal relations between times and events as well as the temporal relations between events and other events

Unlike timestamps found in structured text, expressions of time in the narrative are often indefinite

Temporal relations in the narrative frequently do not indicate the exact occurrence of an event
VISUALIZATION TOOL

• The tool displays a single patient’s timeline as extracted from the clinical narrative

• The tool uses a unique combination of symbols, colors and shading to represent indefinite time expressions, inexact temporal relations, event properties and time span attributes

• The tool uses a unique component to display the entire patient timeline even when the main timeline panel is zoomed into part of the timeline

• The tool links a display of the source note with the display of and interaction with the graphical timeline
DEMONSTRATION
COMING ATTRACTIONS

• Display of an aggregated timeline from multiple notes
• Direct integration with cTakes NLP software
• Selection of text within the note to focus upon times and events in the graphical timeline
• Graphical indication of umls entities in note text
• Display of non-temporal relation information for events such as location, severity, cause, etc.
• Indication of symptom, disease, dosage progression
• Display of additional time expressions such as sets and durations
• Links upon the timeline to external media
• Improved time span display symbols, colors, etc.
• Improved event info panel display and interaction

• Integration of structured data
THANK YOU