

NARRATIVE EVENT AND TEMPORAL RELATION VISUALIZATION TOOL

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GENERAL BACKGROUND

- This prototype is being tested as part of the Temporal Histories of Your Medical Event (THYME) project¹
- 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) platform³
- Use of the tool will also play a part in a project in the oncology domain funded by the National Cancer Institute (NCI)

¹ <http://thyme.healthnlp.org>

² <http://ctakes.apache.org>

³ <http://www.i2b2.org>

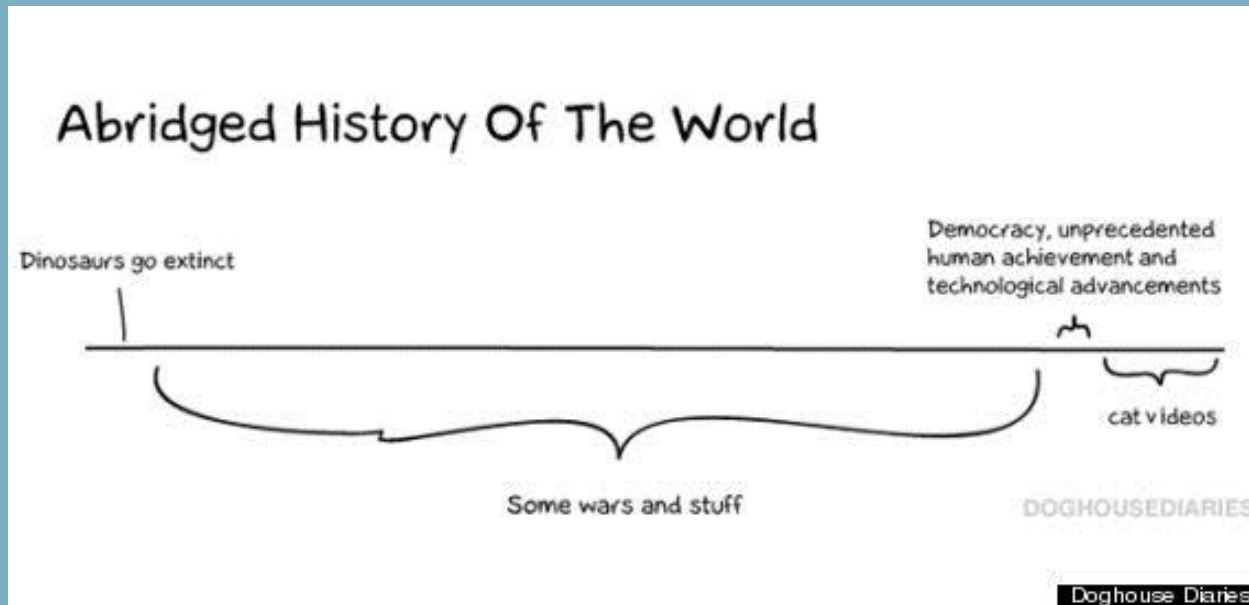
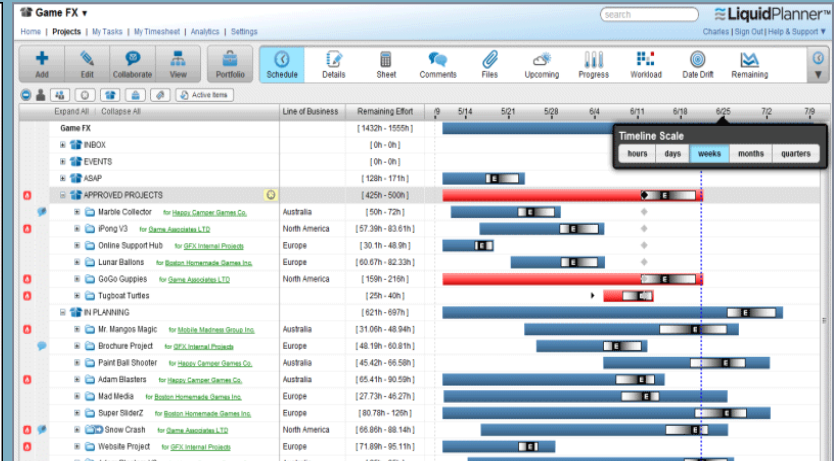
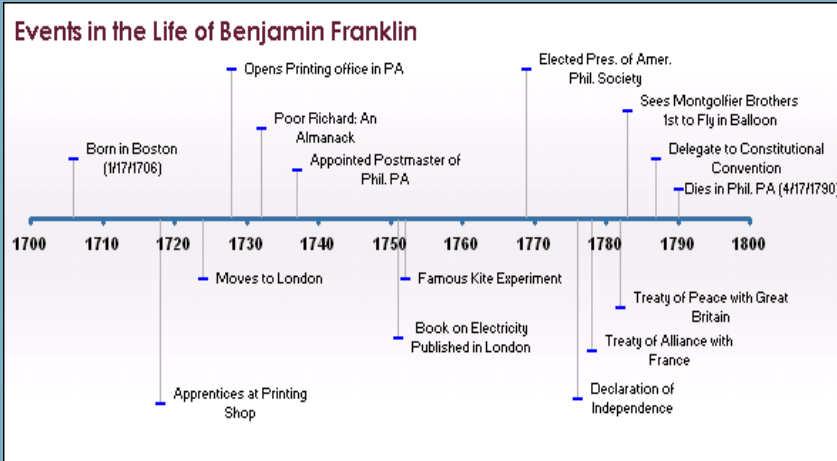
ACKNOWLEDGMENTS

- This work is partially supported by:
 - THYME (R01LM010090) , and
 - I2B2 (U54LM008748) from the National Library of Medicine

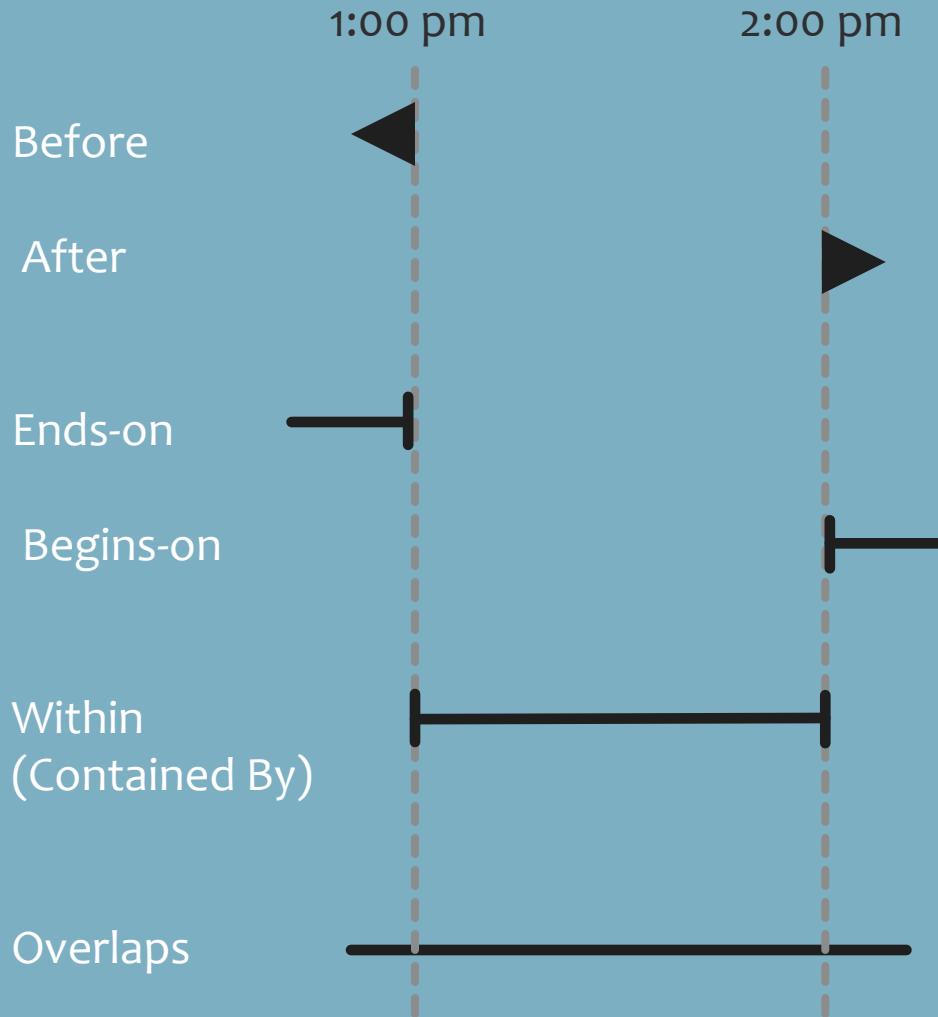
- Major contributors to the tool are:
 - Piet C. De Groen, Primary Investigator
 - Sean Finan, Lead Developer¹

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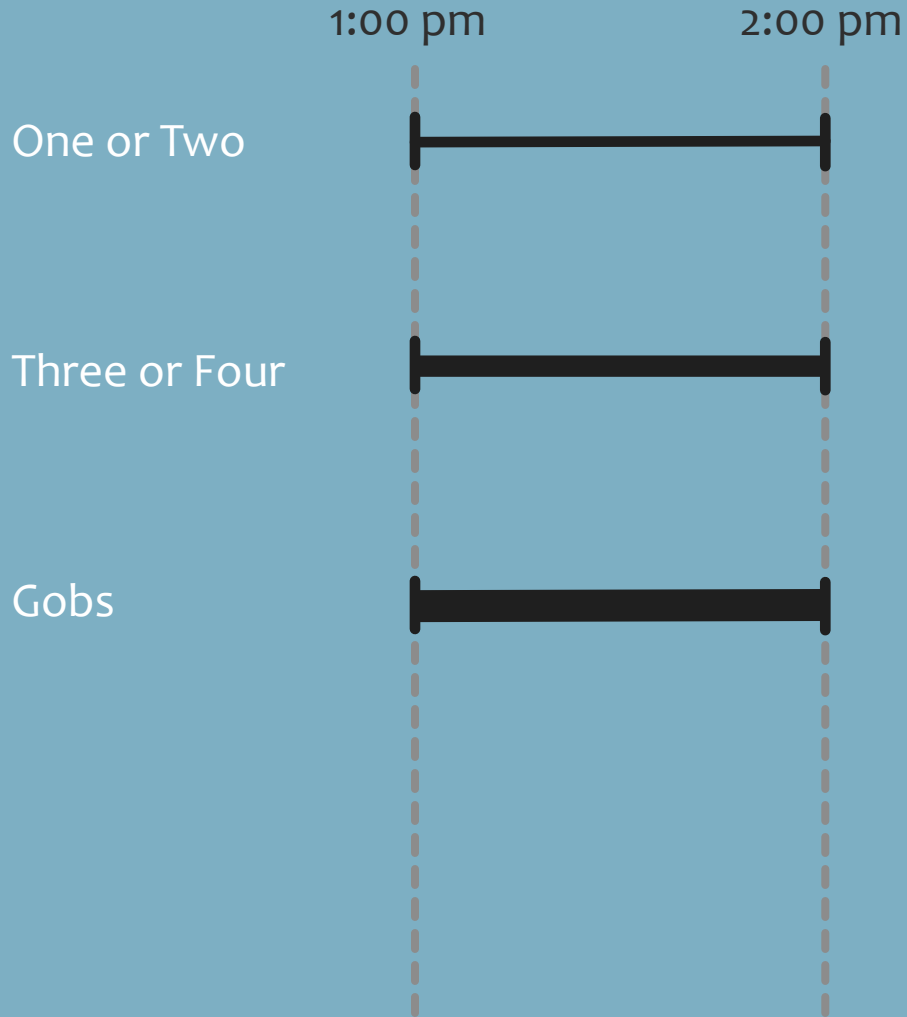
TRADITIONAL TIMELINE REPRESENTATION



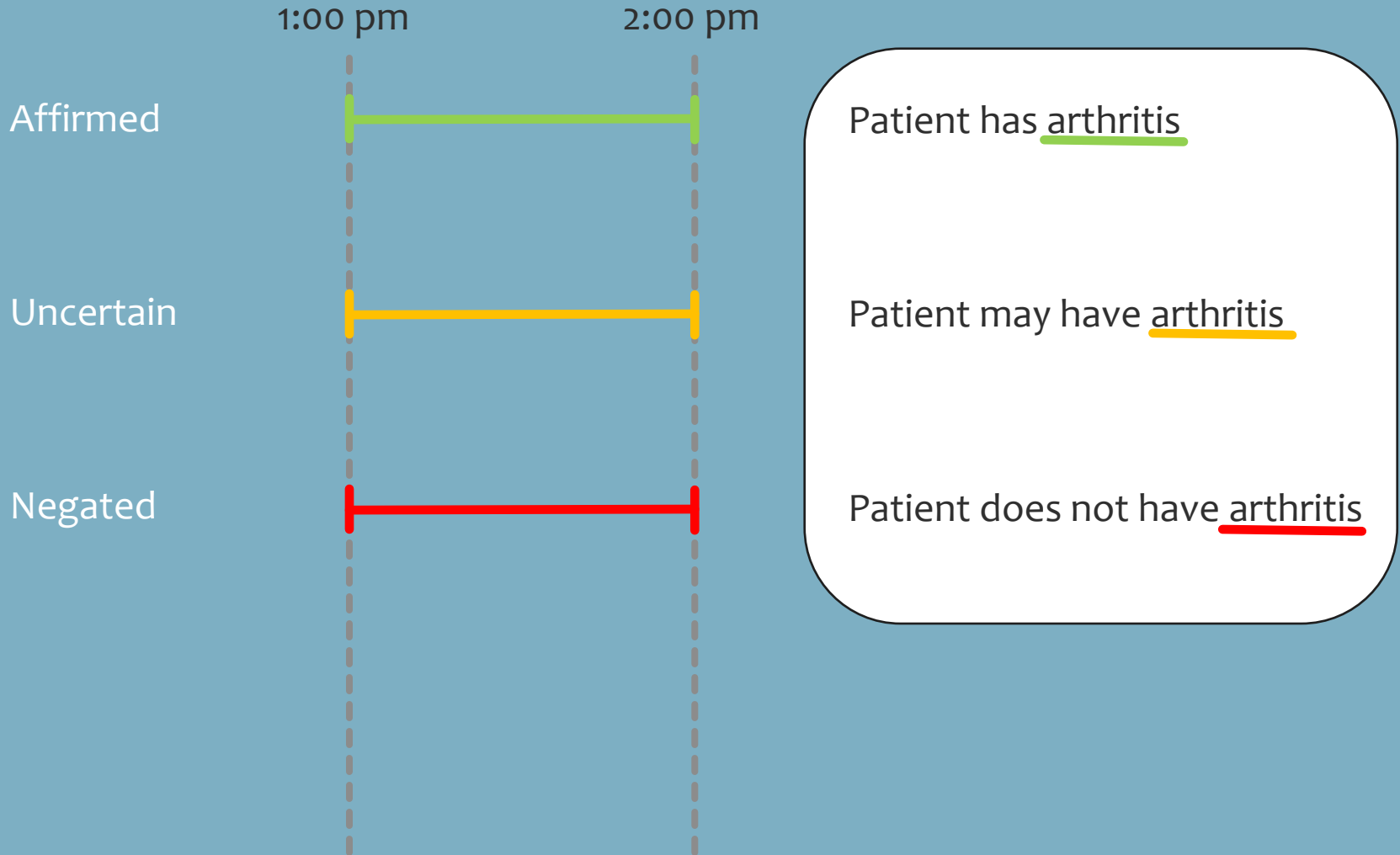
RELATION TYPE SYMBOLS



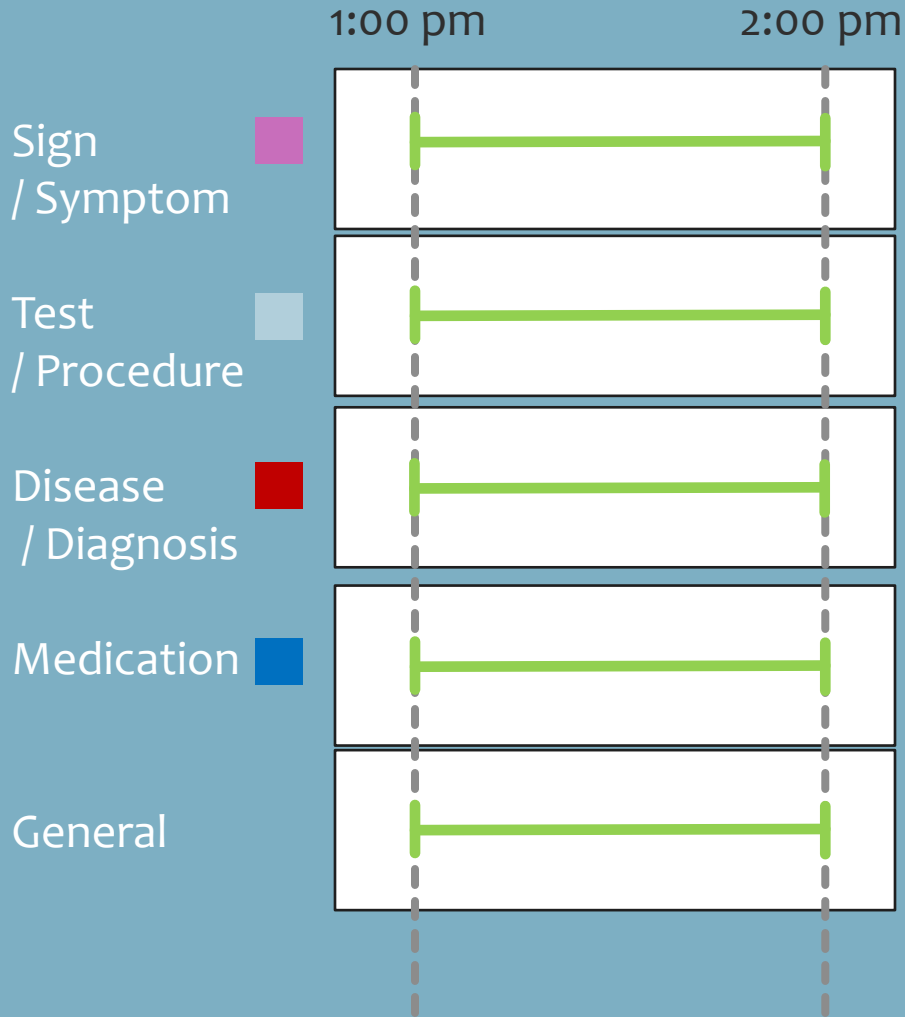
EVENT COUNT THICKNESS



EVENT CERTAINTY COLORS



SEMANTIC GROUP COLORS



Patient had sore joints ■

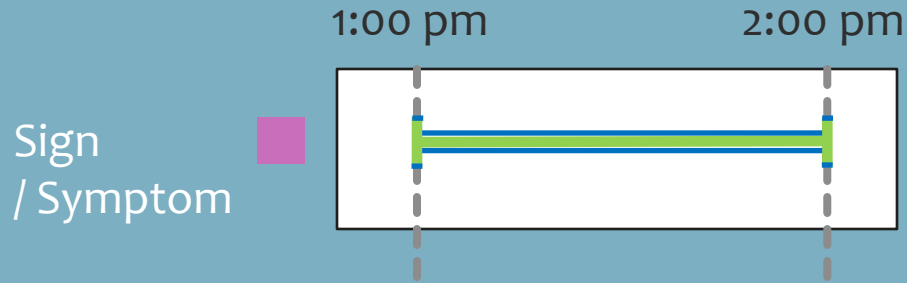
Patient had a blood test ■

Patient has arthritis ■

Patient takes Ibuprofen ■

Patient is happy

SELECTION COLORS



Patient had sore joints

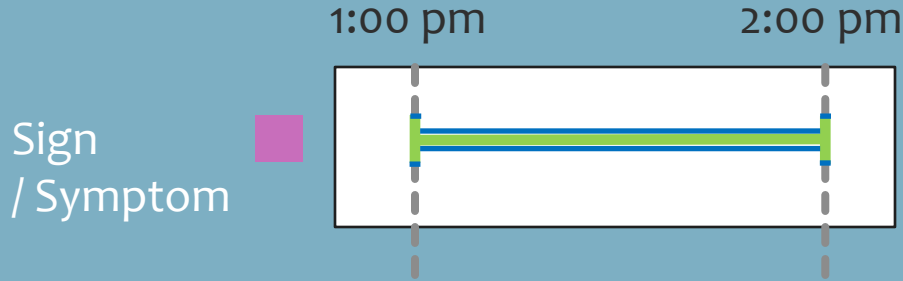
Color names if you're a girl...

Color names if you're a guy...

Maraschino	Red
Cayenne	Purple
Maroon	
Plum	Pink
Eggplant	
Grape	Orange
Orchid	
Lavender	Yellow
Carnation	
Strawberry	Green
Bubblegum	
Magenta	Blue
Salmon	
Tangerine	Blue
Cantaloupe	
Banana	Blue
Lemon	
Honeydew	Blue
Lime	
Spring	Blue
Clover	
Fern	Blue
Moss	
Flora	Blue
Sea Foam	
Spindrift	Blue
Teal	
Sky	Blue
Turquoise	

Doghouse Diaries
"We take no as an answer."

JUST TWO MORE ...



Patient had sore joints ■
at 1:00 pm

sore joints

Is within 1:00 pm

Color names if you're a girl...

Color names if you're a guy...

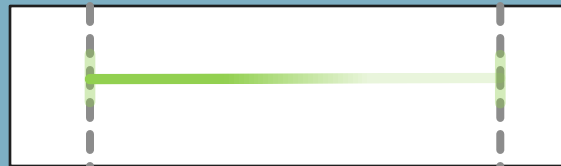
Maraschino	Red
Cayenne	Purple
Maroon	
Plum	Pink
Eggplant	
Grape	Orange
Orchid	
Lavender	Yellow
Carnation	
Strawberry	Green
Bubblegum	
Magenta	Blue
Salmon	
Tangerine	Teal
Cantaloupe	
Banana	Sky
Lemon	
Honeydew	Turquoise
Lime	
Spring	Teal
Clover	
Fern	Sky
Moss	
Flora	Turquoise
Sea Foam	
Spindrift	Teal
Teal	
Sky	Turquoise
Turquoise	

Doghouse Diaries
 "We take no as an answer."

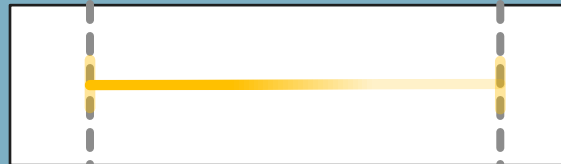
INDEFINITE TIME SHADING

1:00 pm 2:00 pm

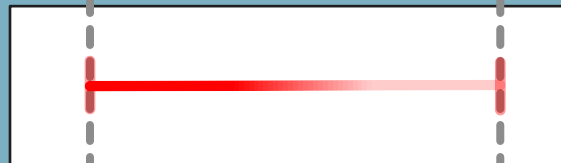
Affirmed



Uncertain



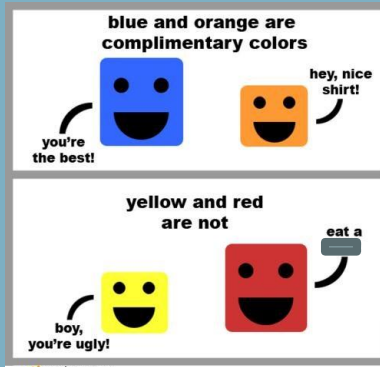
Negated



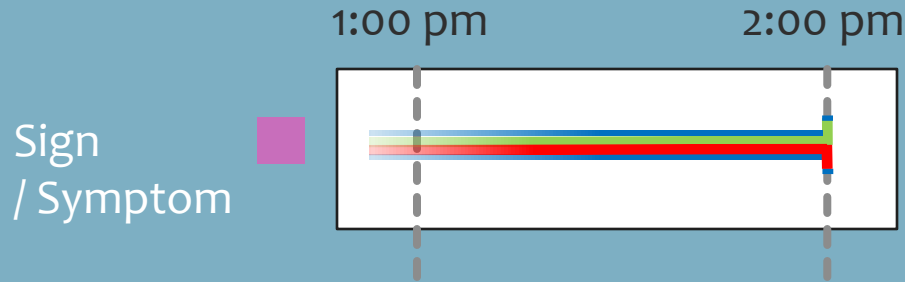
Patient had joint pain[■]
an hour ago

Patient may have had pain[■]
an hour ago

Patient did not have joint pain[■]
an hour ago



PUTTING IT ALL TOGETHER ...

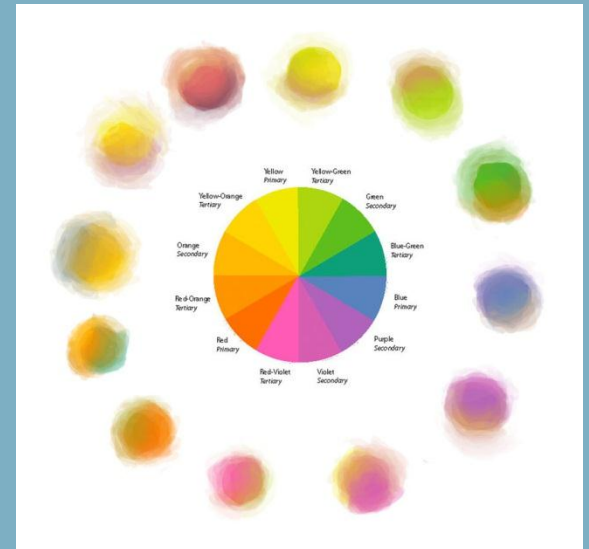


Patient had sore joints

(but no enlarged joints)
an hour ago
but not at 2:00 pm

sore joints

- *Overlaps an hour ago*
- *Ends on 2:00 pm*



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
- 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