

Temporal Annotation

A Proposal for Guidelines and an Experiment with Inter-annotator Agreement

André Bittar, Caroline Hagège
Xerox Research Centre Europe
Meylan, France
first.last@xrce.xerox.com

Véronique Moriceau, Xavier Tannier
LIMSI-CNRS
Orsay, France
first.last@limsi.fr

Charles Teissède
MoDyCo
Nanterre, France
charles.teissède@gmail.com

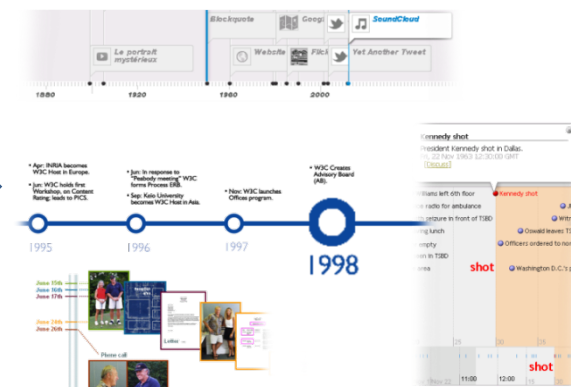
ANR project Chronolines

The state-run station blamed terrorists for the explosion in the Qazaz area, where a Syrian intelligence agency... The explosions occurred at about 7.50am local time during the rush hour, according to the state news agency.

Fifty-five people were killed and 372 wounded in the explosion, according to the Syrian foreign affairs spokesman Jihad Matar. He said the "most bloodiest" attack so far, he said two suicide bombers were killed, containing more than 1,000kg of explosives.

Raw text

Temporal
Annotation



Graphical interface

Motivation: Temporal annotation...

- Must be carried out in context (cf surface-based TimeML)
- Use linguistically founded choices and linguistic tests for annotators.
- Application of guidelines across languages (English & French)

Importance of context:

John arrived two days before Christmas.

→ date (23rd of December)

John stayed two days before Christmas.

→ duration (2 days) + date (25th of December)

- Use syntactic and semantic criteria to segment expressions.

John arrived/arrives on Monday. → Last Monday/next Monday.

- Governing verb tense determines interpretation.

Annotation schema: Inspired by and compatible with TimeML

Events (<EVENT>): as in TimeML, corresponds to all "eventualities"

Atomic temporal expressions (<TEMPEX>):

Durations – answer question "how long?"

Aggregates – answer question "how often/how frequently?"

Dates – answer question "when?"

Non-atomic temporal expressions (<EVENT> + <SIGNAL> +

<CONNECT>): Event temporal expressions (ETEs) – answer question "when?" and headed by an event.

Differences to TimeML:

- Annotation with syntactic and semantic criteria, not just surface forms.
- All text needed for normalization is included in temporal expression (e.g. <SIGNAL>)
- We consider ETEs as temporal expressions.

Examples:

The good news comes <TEMPEX><SIGNAL>after</SIGNAL> several long months of war</TEMPEX>.*

* La bonne nouvelle arrive après plusieurs longs mois de guerre.

<SIGNAL id="s1">Well before</SIGNAL> Gaddafi, leader of Libya since 1969, was <EVENT id="e1">chased</EVENT> from power...†

† La bonne nouvelle arrive après plusieurs longs mois de guerre.

Annotation experiment:

Aims:

- Test guidelines on "real" texts to determine schema coverage
- Build gold standard for evaluation of automatic annotation system
- Measure inter-annotator agreement → human benchmark

Details :

- 5 annotators (4 experienced, 1 novice)
- Annotation of French newswire texts (not pre-processed)
- 3 rounds of annotations on separate corpora
- Round 1 : 50 texts, Rounds 2 & 3 : 30 texts
- F-score and Kappa measured

Inter-annotator agreement:

	Temporal Expressions				<SIGNAL>		<EVENT>	
	<TEMPEX>		<CONNECT> (ETEs)		F1	K	F1	K
Round 1	0.80	0.54	0.39	0.04	0.52	-0.07	0.23	-0.03
Round 2	0.84	0.64	0.71	0.31	0.73	0.38	0.75	0.41
Round 3	0.92	0.83	0.86	0.70	0.92	0.82	0.87	0.71
Global improvement	0.12	0.29	0.47	0.66	0.40	0.89	0.64	0.74

Comparison with TimeBank 1.2:

Tag	TimeBank agreement	Chronolines agreement
<TIME3> / <TEMPEX>	0.83	0.89
<SIGNAL>	0.77	0.92

