It’s the Same Old Story! Enriching Event-Centric Knowledge Graphs by Narrative Aspects

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Events of varying importance rule our lives

– Event: ‘interactions between participants that happen at a given place to a known time’

– Increasing interest in events in the last years:
  • Prediction Tasks
  • Event-Chain completion
  • Event Representation
On Narrative Aspects

- Humans assume an *intrinsic narrative structure* when dealing with (complex) events
  - i.e., they connect the dots between the event and their prior experience with similar event types
- Structural components of events
- Narrative elements of events
  - Discourse regarding particular events
  - Narrative attributions
Narrative Attributions

• News, social media, and other textual descriptions oftentimes make certain *attributions* to an event or its’ participants
  – Objective attribution
    • e.g., is_underdog(event, participant)
  – Subjective attributions
    • e.g., is_aggressor(
      event, participant, viewpoint)
Narrative Prototypes

NP: David vs. Goliath

(i) Event pattern: conflict[super type]
(ii) Refinements:
    is_underdog(X, conflict) ∧ role(X, conflict) = 'winner'

NP: Gulf War

(i) Event pattern: ‘Gulf War ’91’[event]
(ii) Refinements:
    is_aggressor(X, ‘Gulf War ’91’, ‘western_vp’)
    ∧ X[name] = 'Iraq'
• Retrieval of events based on narrative prototypes

• Critical points:
  – subjective attribution evaluation (RQ1)
  – query performance (RQ2)
**RQ1: Evaluation of subj. attributions**

- **How to evaluate subjective attributions?**
  - Sample data for:
    - 3 viewpoints
    - 5 conflicts
  - Extractive Question Answering task based on RoBERTa
    - (doc, “Who is `<ATTRIBUTION>` in `<EVENT>`?”)

|                | Crimea Crisis | Gulf War | Iraq War | Ukraine Conflict | Vietnam War |
|----------------|---------------|----------|----------|------------------|-------------|
| New York Times | 79            | 129      | 129      | 79               | 42          |
| Washington Post| 79            | 83       | 106      | 79               | 54          |
| Daily Mail     | 91            | 28       | 70       | 66               | 12          |
| The Guardian   | 78            | 31       | 127      | 79               | 1           |
| RT.com         | 78            | 10       | 73       | 78               | 5           |
| Sputniknews    | 79            | 8        | 10       | 79               | 1           |

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RQ1: Evaluation of subj. attributions

- Small scale study regarding the detection of subjective attributions
  - Validated by 3 human raters
    - 4 S. Attributions
    - Fleiss $\kappa = 0.33$
  - Problems:
    - Weak semantic
    - Context and Citation problems
RQ2: Query Performance

• Query improvement by utilizing indexing
  – Objective: reduce the query load for subjective attributions:
    • Index each participant for the subj. attributions
    • Bloom Filter is enough for this purpose
Summary and Outlook

• Narrative Prototypes offer a unified way of describing events in context of:
  – Structural elements (e.g., from knowledge bases)
  – Narrative aspects mostly from textual resources

• Still, a lot of work remains
  – Semantics of subjective attributions
  – Large scale experiments
  – Fine grained viewpoints (perceptual components of viewpoints)
Thank You!

If you have any questions, contact me via:

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