

# Reconstructing storylines by integrating referential grounding in a FrameNet dataset: an applied approach of computational storytelling.

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This paper takes a corpus of hundreds of texts referencing the incident known as *Malaysia Airlines Flight 17* (2014) and showing a strong range of temporal reporting distance, and investigates variation and change in how the event is reported as time unfolds. In the Dutch FrameNet annotation tool (Remijnse et al., 2022, Postma et al., 2020), the corpus is referentially grounded by links of in-text mentions to structured data. On top, the corpus is annotated with FrameNet frames (Ruppenhofer et al., 2016). Instead of annotating all predicates in bottom-up fashion, we annotated top-down from the event, only tagging predicates that contribute to the story, in line with the narratology-based approach of Vossen et al. (2021). This approach regards a reference text as a complex network of temporal relations (chronology), causal relations (causality) and narratological relations (perspectives), all anchored in a climax event (Bal & Boheemen, 2009). A collection of frame-annotated texts referencing the same climax event, as exhibited by our corpus, then allows us to extract the overall developing storyline and provides insight in, e.g., shifts in perspectives on participants, foregrounding and backgrounding effects (Grimes, 2015), and the frames typically used in reference to the type of event, i.e., aircraft shootdown.

Our results show that across time, reference to the main event consistently evokes a small set of frames, like the Downing frame. The higher the temporal reporting distance, the more these frames are evoked in definite nominal expressions, suggesting that the climax event is backgrounded in order for related subevents to be foregrounded. In line with Remijnse et al. (2021), a frame like Downing can be classified as an Anchor frame, i.e., a frame continuously evoked in reference to an event of a certain event type in order to background common knowledge of this event.

With the frames referencing the climax event, we find a strong distinction between expressed and implicit frame elements. Between those frames, the frame elements that are marked by the annotators as unexpressed (a feature of the annotation approach), all share prototypical agentive features (Dowty, 1991). Yet, the corpus does show links from text mentions to suspects of the event in the structured data. Instead of denoting the climax event, the frames evoked by these mentions (e.g., Suspicion, Arrest, Criminal\_investigation) denote related subevents. We see that our referentially grounded approach to frame annotation can reveal characteristic aspects of the story of *Malaysia Airlines Flight 17*: lack of knowledge of the identity of the perpetrator of the aircraft shootdown is backgrounded as an implicature, while the suspects are perspectivized in related subevents.

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