How Issues Guide The Life of News Stories

Blanca Calvo Figueras, Tommaso Caselli, Marcel Broersma
University of Groningen
b.calvo.figueras@student.rug.nl
{t.caselli|m.j.broersma}@rug.nl

Abstract
Explaining the dynamics between the issues mass media emphasize and the salience audiences attribute to these issues is the main concern of agenda setting research. Previous studies (Wanta and Ghanem, 2007; Scheufele and Tewksbury, 2006; Luo et al., 2019) suggest that the capacity of media to influence on the salience of issues depends on 4 parameters, namely: (1.) obtrusiveness; (2.) duration; (3.) abstractness; and (4.) dramatism. Soroka (2002) built upon these parameters by developing an issue typology:

- **Prominent issues**: they affect a relevant number of people directly (e.g. the rise of salaries) and are thought to leave little room for media impact on public opinion.
- **Sensational issues**: they are initiated by a dramatic event (e.g. a kidnapping) but have little observable impact in the everyday life of the majority of the population.
- **Governmental issues**: they are perceived as abstract or as not having direct effect on people’s lives (e.g. public debt) and don’t offer any dramatic or exciting components.

Assuming the validity of Soroka’s typology, we ask whether and how issue types give rise to different life patterns of news stories.

We thus identify three measurable dimensions: (a.) **lifespan** (i.e., the number of days over which articles of a news story are published); (b.) **intensity** (i.e., the number of articles per day per story); and (c.) **burstiness** (i.e., the speed with which stories go from incipient to their climax).

We collected a corpus of 50,385 political articles from major Spanish newspapers in 2018. News stories were generated by aggregating articles with K-means clustering. For each week, we identified the number of clusters (i.e. stories) using the elbow method (k ranging between 1 and 30), and removed general clusters using silhouette analysis. A subset of the clusters was evaluated against a manually labeled data by checking the extent to which clusters contain a single class (i.e., purity) obtaining a score of 0.87. After this, we manually assigned each story to one issue type.

The quantitative dimensions show that the issue types differentiate only to some extent. Sensational stories have the highest intensity, shortest lifespan, and highest burstiness (i.e., they appear “out of the blue”). Prominent stories last for long periods (14 days on average) but have low intensity and burstiness, i.e. they slowly grow to their climax. Governmental stories lay in the middle between these two latter: they are similar to Sensational stories for intensity, and to Prominent for lifespan. However, their burstiness score suggests variations in the speed of their growth.

We refine our analysis by visualising the annotated stories. The resulting graphs (e.g. Figure 1) highlight differences in the life patterns of stories according to their issue type, as if they instantiate different plot structures (Bal, 1997). For instance, sensational stories have one climax event and falling actions (i.e., consequences ). Prominent stories may have multiple climax events, where falling actions of one climax become rising actions of the next (i.e., pre-conditions). Governmental stories vary in their structure according to their topics.

Our approach is language independent and can be applied to study news issue types both across media platforms and countries.

Figure 1: Lifecycle patterns for type of news story. 0 is the climax of each story in our corpus.

References


