

## Community Detection of the Framing Element Network: Proposing and assessing a new computational framing analysis approach

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### Abstract

The evolving computational news framing detection has been a prominent yet contested field among mass communication scholars. This study explores a new approach to identifying frames as clusters of framing elements including actors (i.e., individual and organizational entities) and topics in news articles based on the community detection algorithm. Our approach highlights the fundamental importance of considering individual and organizational actors mentioned in news articles as components of frames, which is overlooked in previous research that uses a similar unsupervised approach. We evaluate the performance of our method by comparing it with one of the most popular unsupervised methods--LDA topic modeling--and a state-of-art deep learning method, BERT, based on 2,900 US gun violence news articles.

Keywords: computer-assist content analysis, framing analysis, BERT, topic modeling, Community Detection, gun violence

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