# Topics and Rhetorics: A Multi-Level Approach to Framing

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The journals *Nature* and *Science* enjoy a high reputation and are being followed not only in the scientific community, but also by media, and journalistis often transmit findings to wider public audiences. The editorials of the journals therefore also play an important role for conveying the opinions of scientists to the public, and indirectly to political actors. British climate scientists built a corpus of all editorials that adressed the topic of climate change (CC) between 1966 and 2016 (Hulme et al. 2018), and attached to each text a frame label that was meant to capture the type of challenge that CC posed, according to the author of the editorial. The categories included *Science, Technology, Economics, Development*, and others. From the annotations, Hulme et al. derived temporal trends of frame usage and a number of differences in the framings used by the two journals.

In the course of running computational experiments on the corpus (Stede et al., 2023), we found two shortcomings of the data: (i) Editorials address CC to very different degrees, sometimes mentioning it only in passing; (ii) the 'challenges' essentially amount to *topics*, which (while a very popular approach in many disciplines) do not provide a fully satisfacory conceptualization of *framing*.

In our current work, we extend the corpus by adding the editorials covering 2016 to 2022, and by re-annotating the data as follows: Paragraphs are rated for their degree of being related to CC. If a paragraph addressess CC, it receives a 'topic' frame. In addition, we annotate frames in the tradition of Entman (1993) on sentence level within that paragraph: *problem description, cause of the problem, moral judgement,* or *suggestion of remedy*. Finally, to the full editorial text, we assign the stance the author conveys toward CC: it is a problem; it is not a problem; author is unsure about the status of the problem; or there is no recognizable stance. We argue that these annotations provide a more fine-grained account of the framing in the texts, by focusing only on the relevant text portions and by representing the interplay of the 'topic' frames and the Entman-style 'rhetorical' frames.

**References:** Entman, R.M. (1993). Framing: Toward clarification of a fractured paradigm. *J of Communication* 43(4), 51-58. • Hulme, M., N. Obermeister, S. Randalls & M. Borie (2018). Framing the challenge of climate change in Nature and Science editorials. *Nature Climate Change* 8, 515-521. • Stede, M., Y. Bracke, L. Borec, N.C. Kinkel & M. Skeppstedt (2023). Framing Climate Change in Nature and Science Editorials: Applications of Supervised and Unsupervised Text Categorization. *J of Computational Social Science.* https://doi.org/10.1007/s42001-023-00199-7