

AI4Sci - Understanding Scientific Online Discourse using AI



Motivation

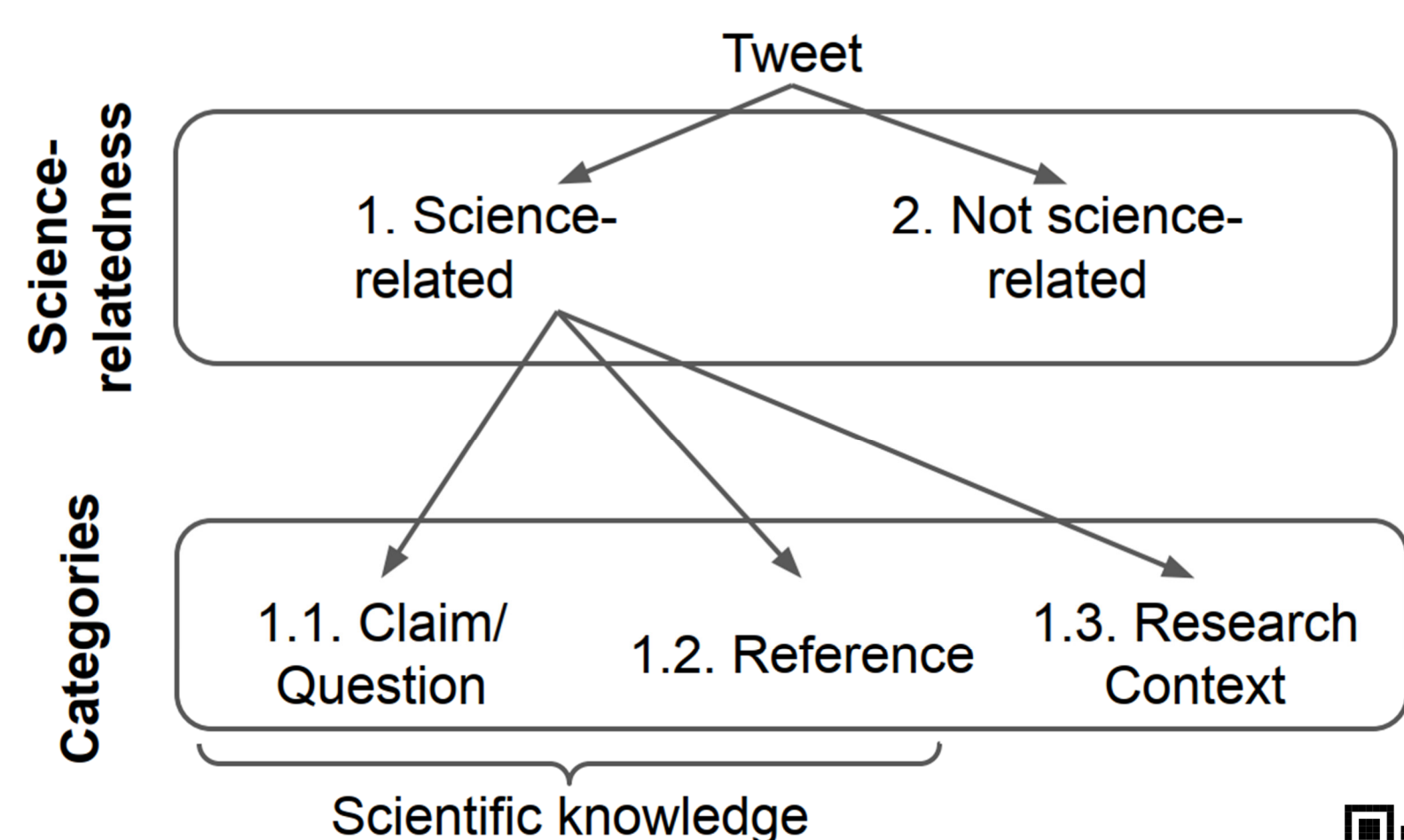
- Scientific topics, claims and resources are increasingly debated as part of online discourse (see figure for an exemplary tweet)
- Due to the inherent complexity of scientific insights, they tend to be represented in a simplified, decontextualized and often misleading way (unintentionally or deliberately)
- With phenomena like misinformation spread or reinforcement of biases, misinformation on scientific topics such as COVID-19 has particularly detrimental effects on society and public health
- AI4Sci addresses the challenge of providing hybrid AI methods for tracing and interpreting scientific online discourse, to tackle and understand misinformation in society



Claims about the Heinsberg study as part of the scientific online discourse on Twitter

Current Research

- Previous work lack robust definitions of scientific online discourse and its various forms as well as annotated ground-truth data for advancing NLP and IR research into scientific online discourse
- Especially the distinction between scientific discourse that conveys scientific knowledge (e.g., a claim about vaccination risks), and other forms of science-related discourse (e.g., tweets about scientists) is missing
- Filling the gap: submitted first AI4Sci paper with
 - sound definitions of three different forms of science-related discourse (see figure)
 - an annotation framework building on our definitions
 - ~1200 tweets labeled by four annotators per tweet



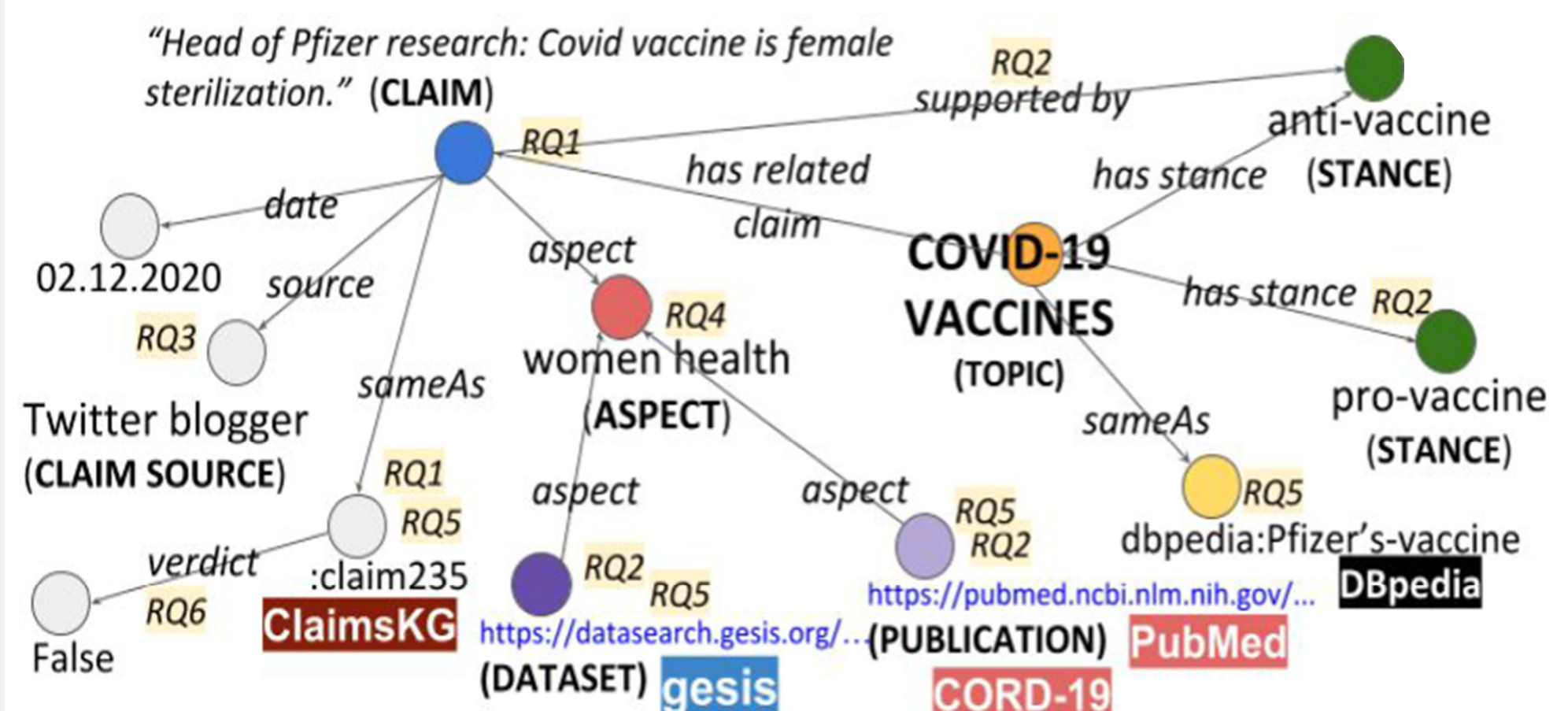
Categories of Science-relatedness (see QR-code for further details)



Future Research

Potential future research directions:

- How to formally represent the different forms of science-related discourse? e.g., using knowledge graphs (see figure)
- How to link claims to stances, sources, articles and data?
- How to further categorize science-related discourse? e.g., with regards to topic or type of reference
- How to integrate knowledge from the Web and scientific portals? e.g., to retrieve scientific evidence to support a claim



Knowledge Graph on Scientific Online Discourse linking claims, topics, stances, etc.

