

Towards Better Understanding: Proposing Effective Visualization Methods for Analyzing Argument in Debate

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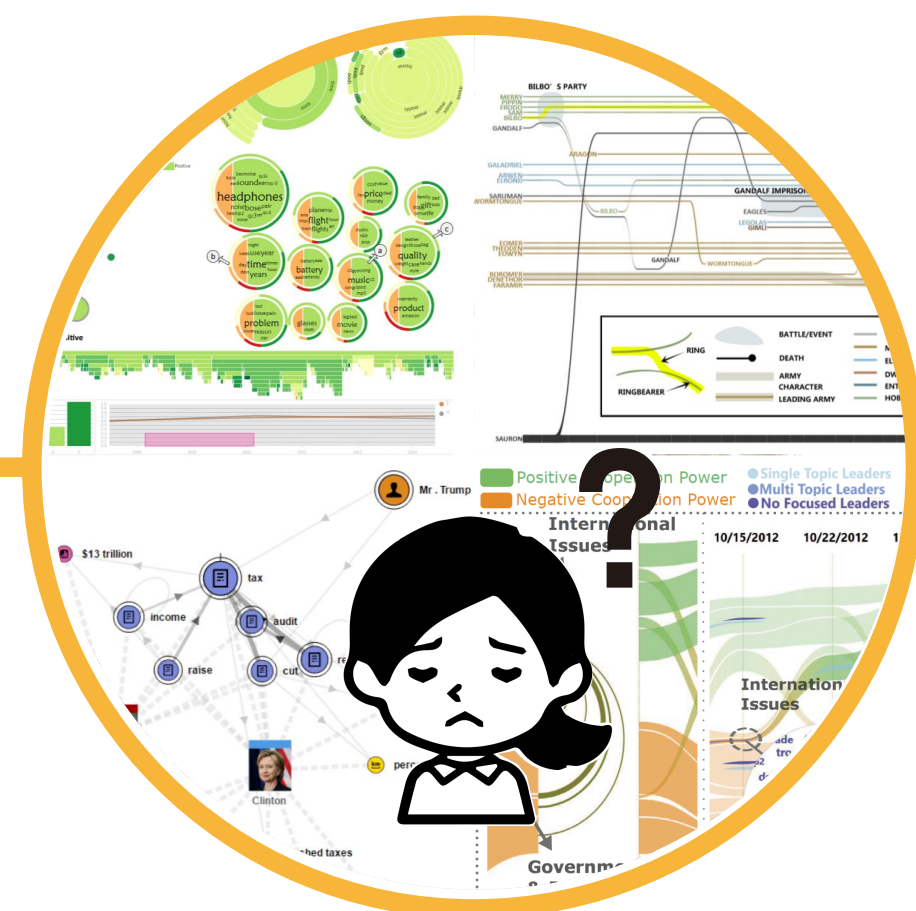
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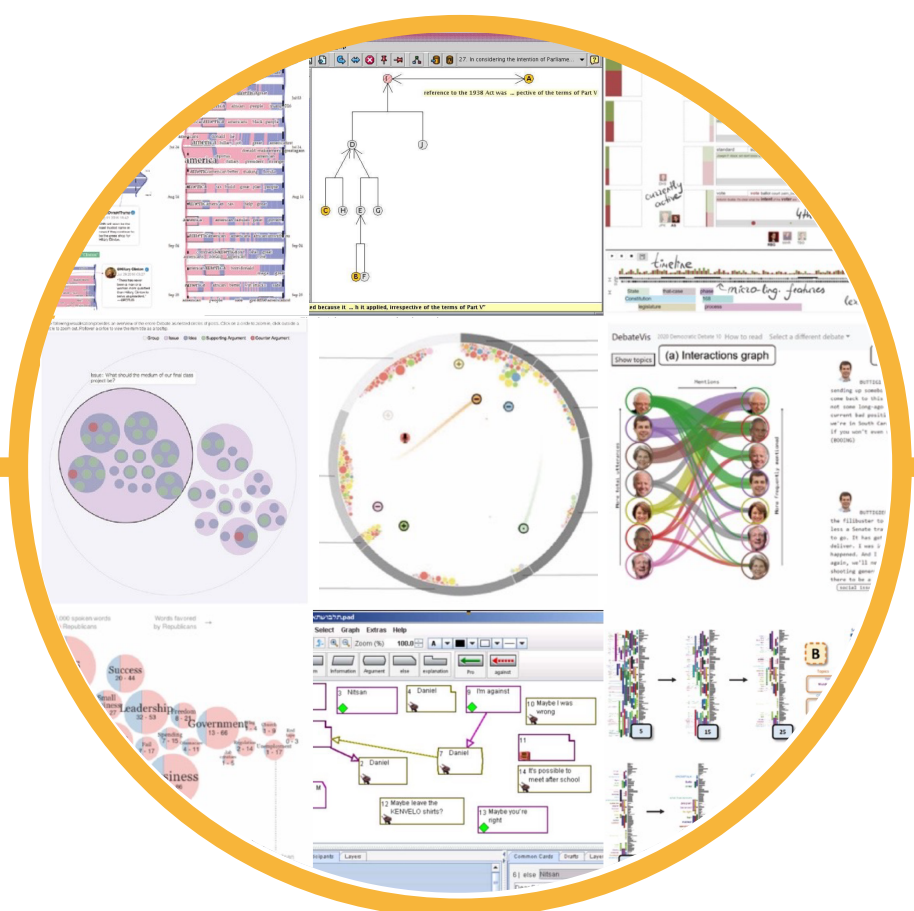
Introduction



Debate is an important process in which participants exchange different perspectives and information to reach a reasonable conclusion.



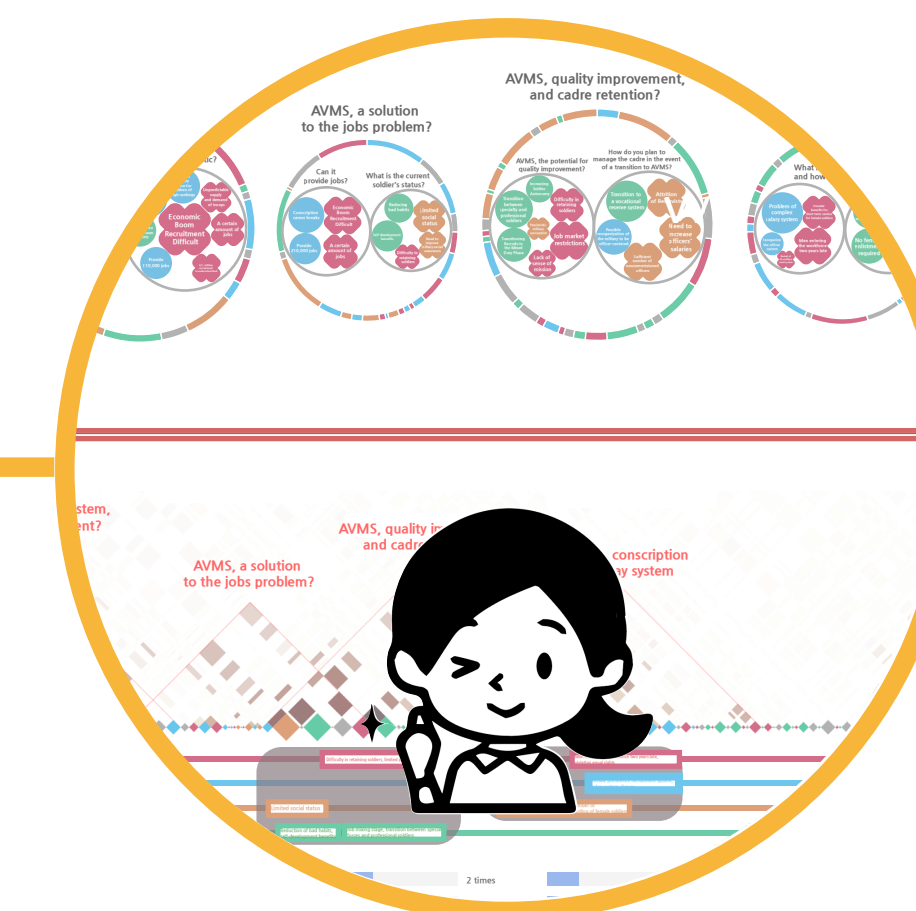
Analyzing arguments during a debate is complex and in an environment where topics and arguments are constantly changing, it's important to find important arguments and compare participants perspectives.



As a result, many researchers are turning to visualization to alleviate the complexity of debate analysis.

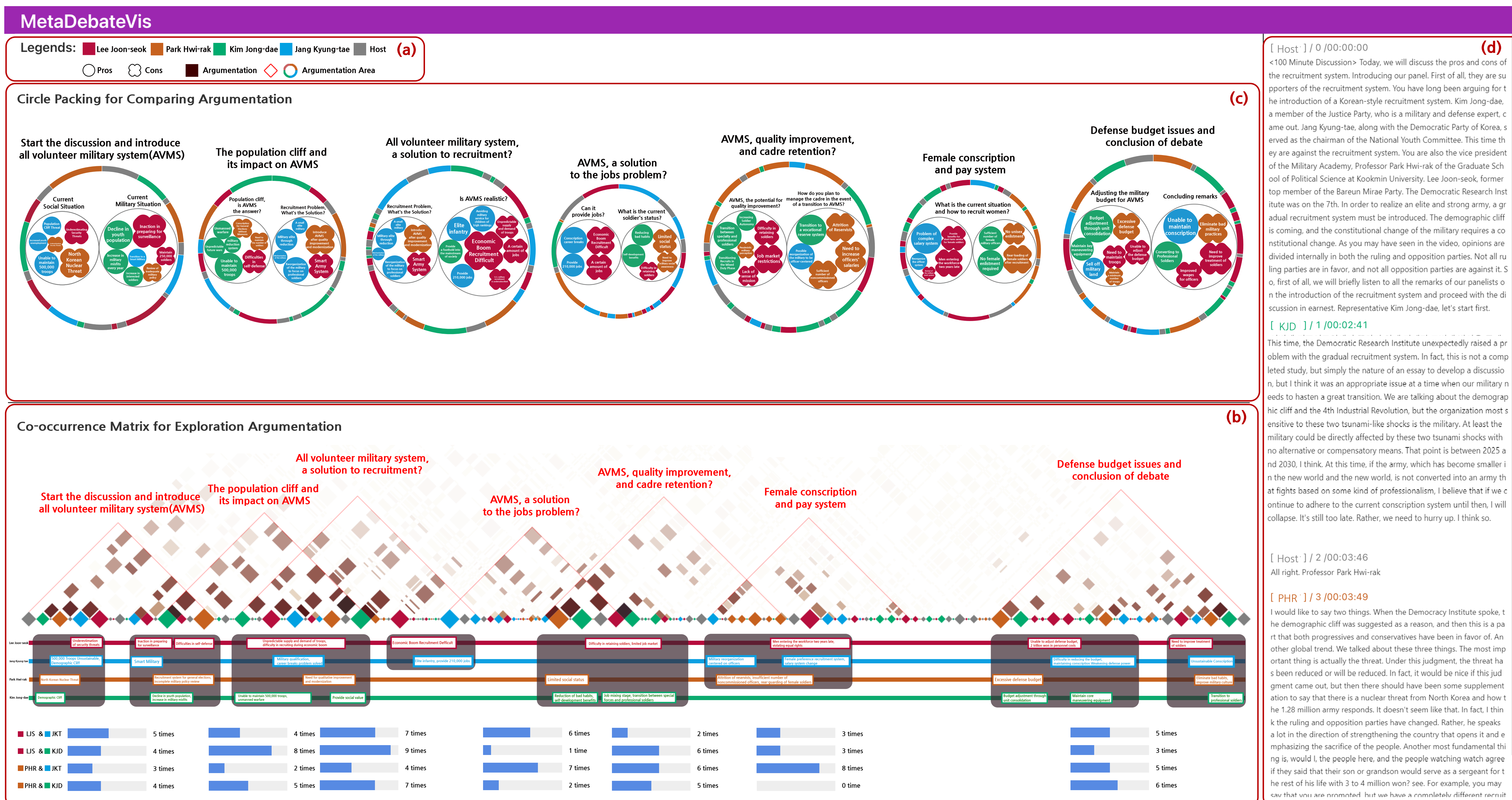


Our work presents visualization methods for debate analysis, including co-occurrence matrix for argument detection and circle packing for argument comparison and script viewers of key utterances.



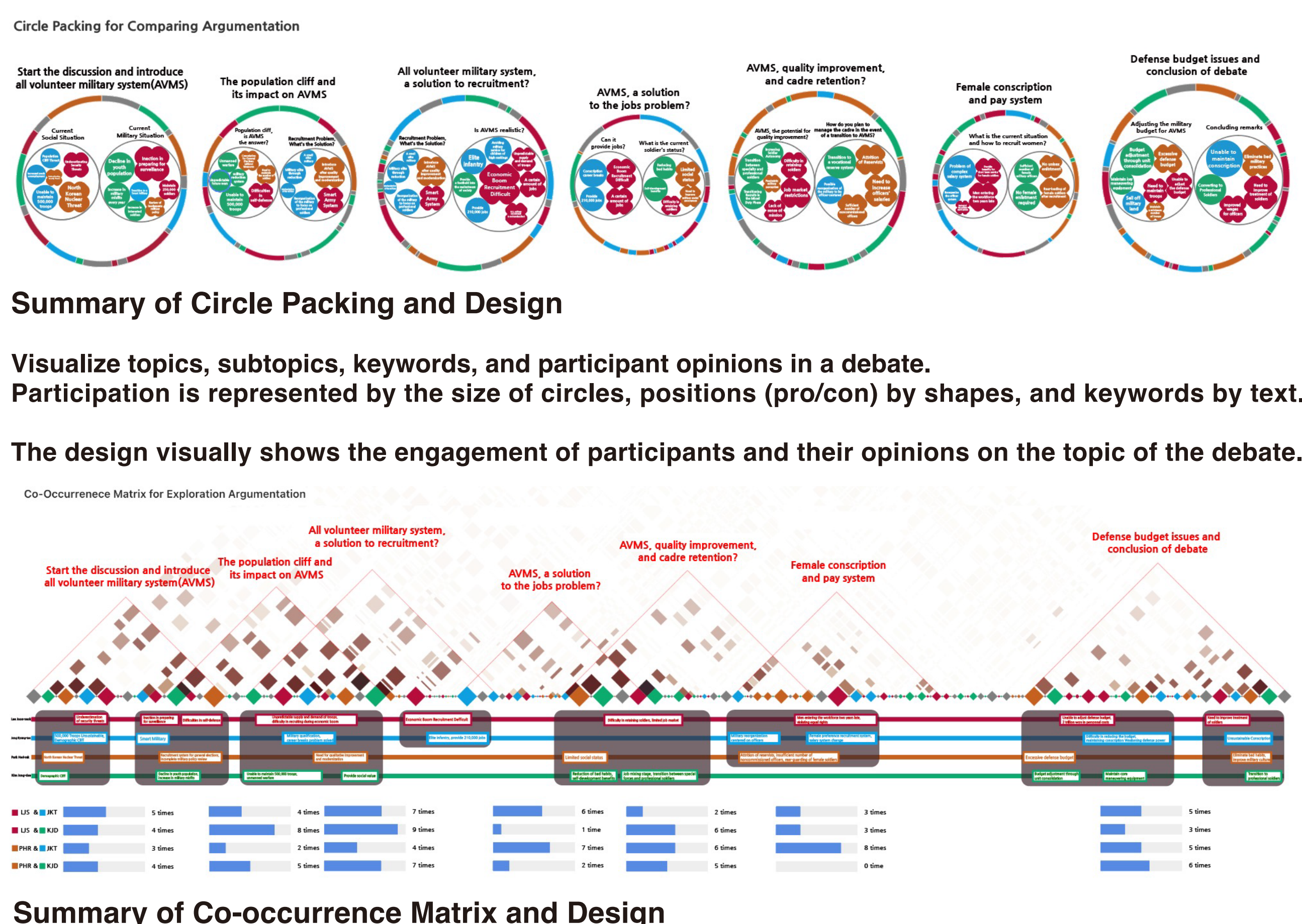
The system helps users detect key topics and contentious areas, identify key participants and keywords, and provides a clear picture of the overall flow and structure of the debate.

Visualization Overview

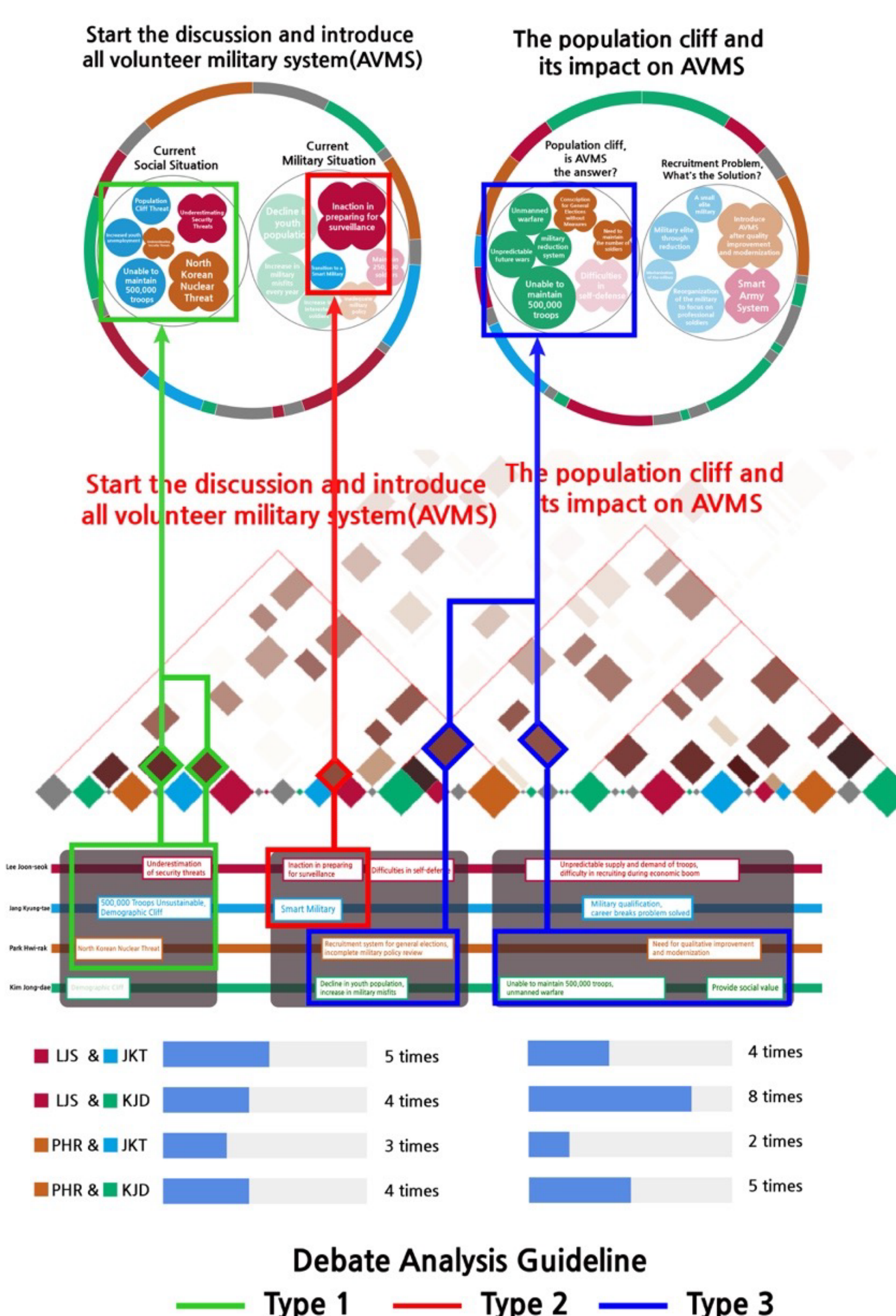


- a) **Legends:** Represents the information and argumentation of the debaters.
- b) **Co-occurrence Matrix:** Displays debaters argument relationships. Accompanied by a keyword graph and a contention bar chart.
- c) **Circle Packing:** Displays the primary keywords within each debate topic, facilitating a comparison of the pros and cons on each issue.
- d) **Script Viewer:** Located on the right side of the interface, it allows users to access detailed transcripts of the debate participants' contributions.

Main Visualization



Usage Scenario



- User want to analyze the important parts of the first and second debate topic sections start the debate and introduce all volunteer military system(AVMS)" and "The population and its impact on AVMS.
- The main arguments in the debate sections such as Type1, Type2 and Type3 can be seen through interaction between co-occurrence matrix and circle packing.
- This visualization provides a holistic and intuitive snapshot of the debate enhancing the user's understanding and analysis of the debate.
- User use both visualizations to effectively represent the argument parts of the debate in circle packing and see where the debate is deepening through correlation saturation in the co-occurrence matrix.