ArguMeet: An Argument Diagramming Schema for Meeting Conversations

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Abstract

We propose a schema called *ArguMeet* for argument diagramming of multi-party meeting conversations. The argumentative portions are extracted from the meeting transcript and a visual representation is created which provides a high-level view of the argumentation that has taken place during the meeting resulting in a set of possible action points.

1. Introduction

An argument diagram (also called argument graph/tree/map) is a visual representation of the argumentative discourse units (ADUs) such as claims and premises and the interrelationships amongst them. The history of argument diagramming [Reed et al., 2007] is a long and illustrious one dating back to 1836 and charting its course through the fields of logic [Whately, 1836, Beardsley, 1950, Scriven, 1976, Freeman, 1991], law [Wigmore, 1913, Schum, 1994] and artificial intelligence.

A meeting is an extremely fertile domain for argumentation mining. Rienks et al. [2005] introduced an argument diagramming model based on the Twente Argumentation Schema (TAS) which they used to manually annotate meeting transcripts from the AMI meeting corpus [Carletta et al., 2006] which consists of 100 hours of multi-modal meeting recordings. The argument trees thus produced consists of three type of nodes (issues, statements and others) and nine types of edges (elaboration, specialization, request, option, option-exclusion, positive, negative, uncertain and subject-to). But the diagrams leave out one important aspect – the speaker information. Pallotta et al. [2010], on the other hand, used a conversation graph which visually summarizes the topics discussed, the person who discussed it, the time duration spent on the discussion, and the type of argument put forth by each participant. The problem with conversation graphs is that of scaling with respect to the length of meeting as well as the number of participants. Our proposed schema attempts to remedy these issues while retaining the most important aspects of meetings which might prove useful in later meeting processing tasks.

2. ArguMeet Schema

We have used portions of the multi-party meeting transcript for Automin-2021[1]. At the highest level a meeting is divided into three phases – opening remarks, discussion and closing remarks. Most of the argumentation happens to be in the discussion phase which is subdivided based on the issues raised which are represented by double-edged rectangles as shown in Figure 1. The issues are connected to the support and refute statements which are represented by the green and red coloured rectangles respectively. The participants are denoted within ellipses. An issue along with the support and refute arguments and the participants are enclosed within a dashed box which signifies the topical boundary. Out of each such box a possible action item is extracted which are then connected to the closing remarks.

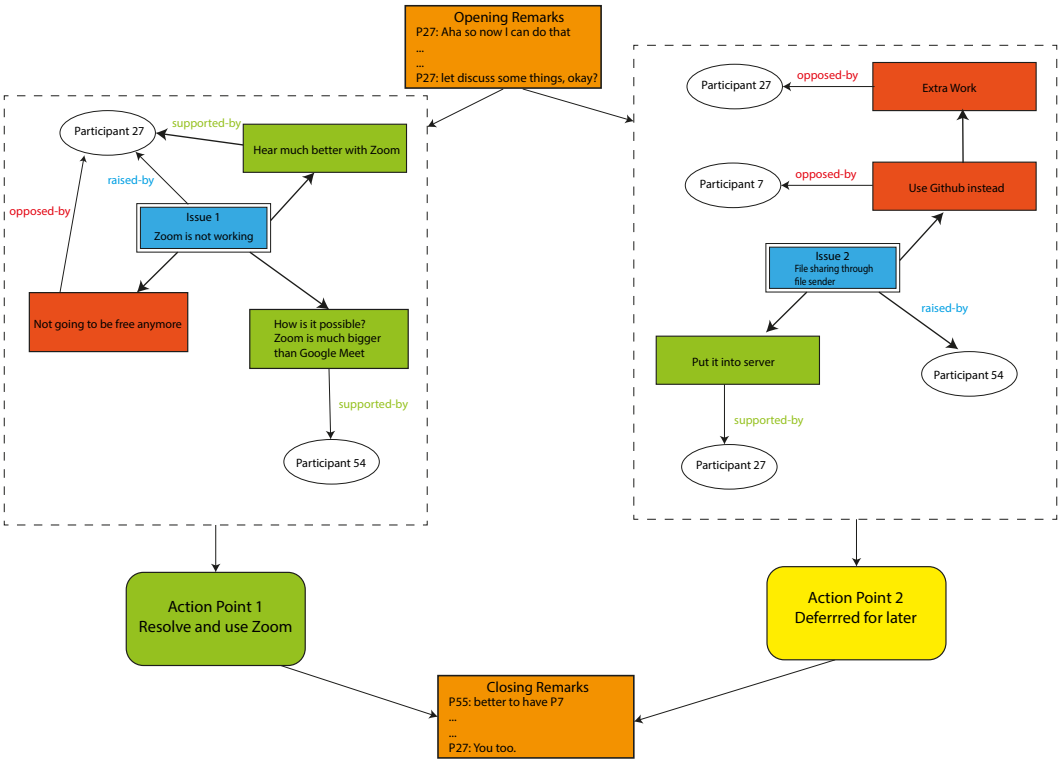

Figure 1: ArguMeet diagram of Automin-2021 transcript

Such a visual representation of meeting arguments hopefully will be useful in efficient storage and retrieval of meeting knowledge for later processing. Moreover such a representation might even serve as an input for modern graph based algorithms for instance graph neural networks (GCN) for multi-party meeting related computational tasks.

1. https://github.com/ELITR/automin-2021/blob/main/Task_A/meeting108_en/transcript108_en

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