

Modeling Interactions in Product Reviews

Utilizing Formal Argumentation to Assess Strengths and Weaknesses of Products Across Different Aspects

Ji Qi, Research Software Engineer, Social Science and Humanities Section, Netherlands eScience Center

Atefeh Keshavarzi Zafarghandi, Human-Centered Data Analysis, Centrum Wiskunde & Informatica

Davide Ceolin, Human-Centered Data Analysis, Centrum Wiskunde & Informatica

j.qi@esciencecenter.nl, akz@cwil.nl, davide@cwil.nl

Introduction

This study focuses on the creation of a valuable resource powered by formal argumentation for new users by effectively analyzing product reviews and highlighting the strengths and weaknesses associated with different aspects of a product.

Imagine that there are three reviews given for shoes:

☆☆☆☆☆ R1: “They are always *well built* and last me quite a few years. The only downside is they tend to be a bit pricey.”

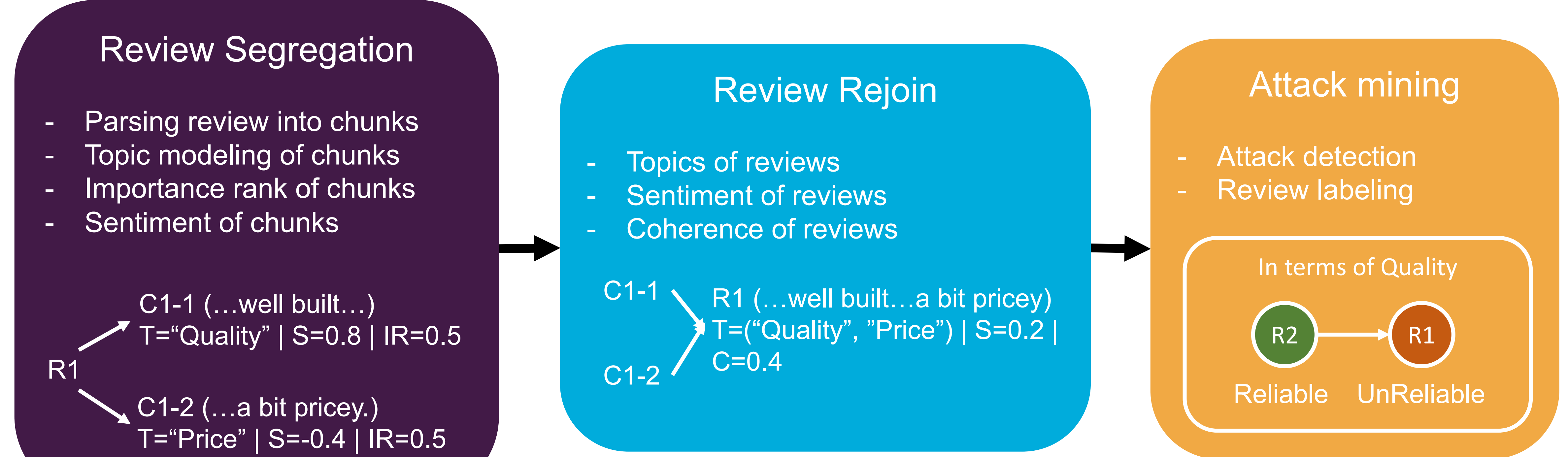
☆☆☆☆☆ R2: “My shoes are *damaged in its warranty* but the team has no response. Don’t buy, very expensive.”

☆☆☆☆☆ R3: “Largely my fault for not reading carefully, but it is very uncomfortable.”

They describe the shoes on different aspects, e.g., quality, price, service, and comfort. Here is the question we aim to answer: In case reviews conflict regarding one aspect (*well built* vs. *damaged in its warranty* regarding the quality of the shoes), which ones should we trust?

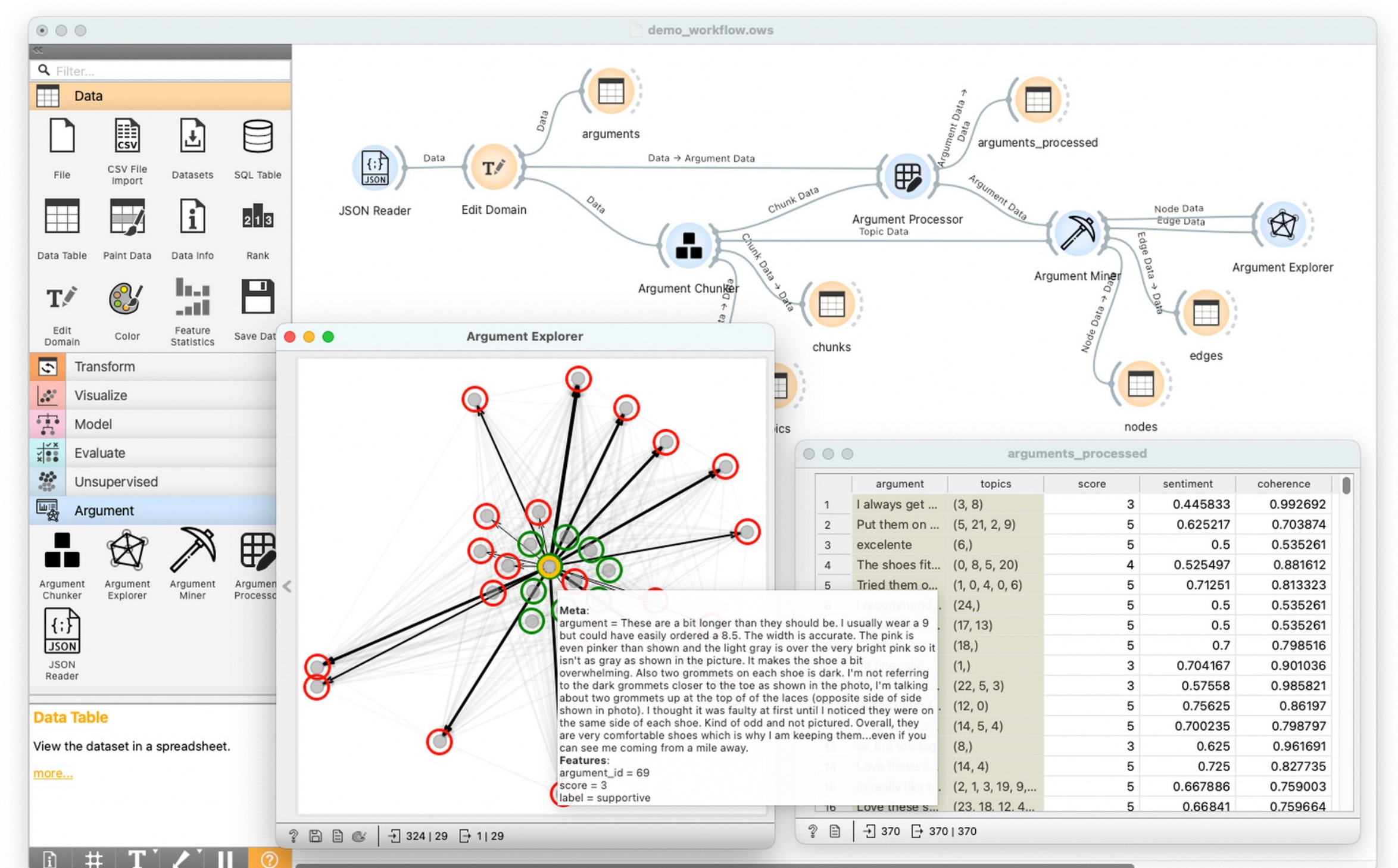
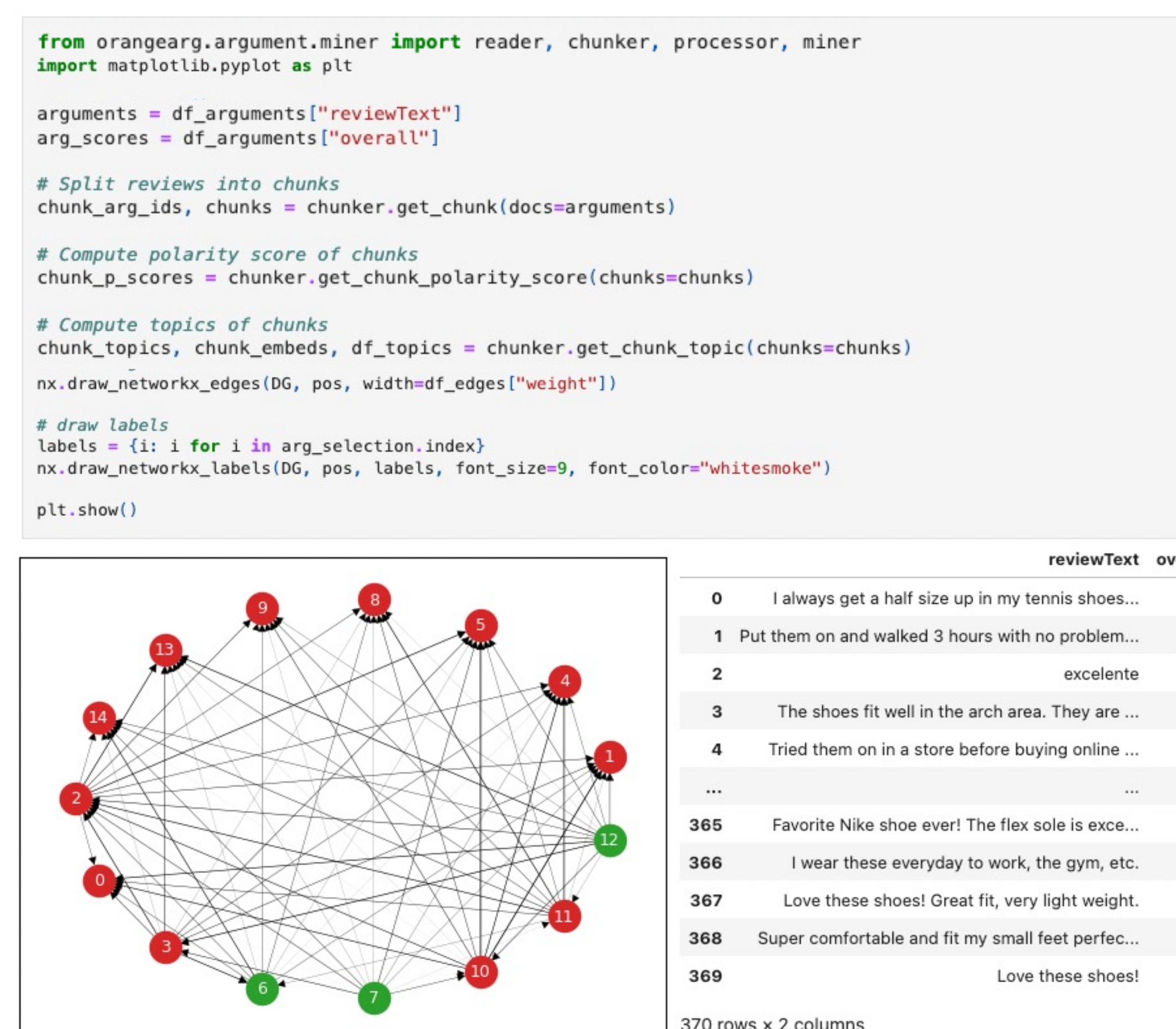
Methods

We use **Abstract Argumentation Frameworks** to address the question in three steps:



Implementation

A Python package is developed to implement the pipeline, as well as GUIs for user-friendly interaction.



Find our work on GitHub

<https://github.com/EyeofBeholder-NLeSC/orange3-argument>