



Argviz: Interactive Visualization of Topic Dynamics in Multi-party Conversations

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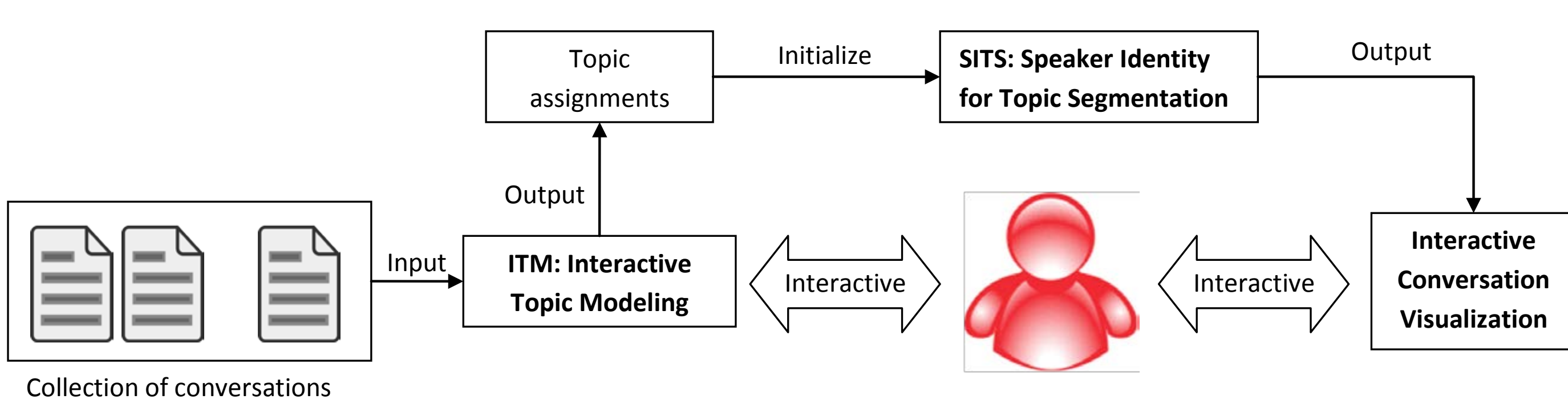


Motivations

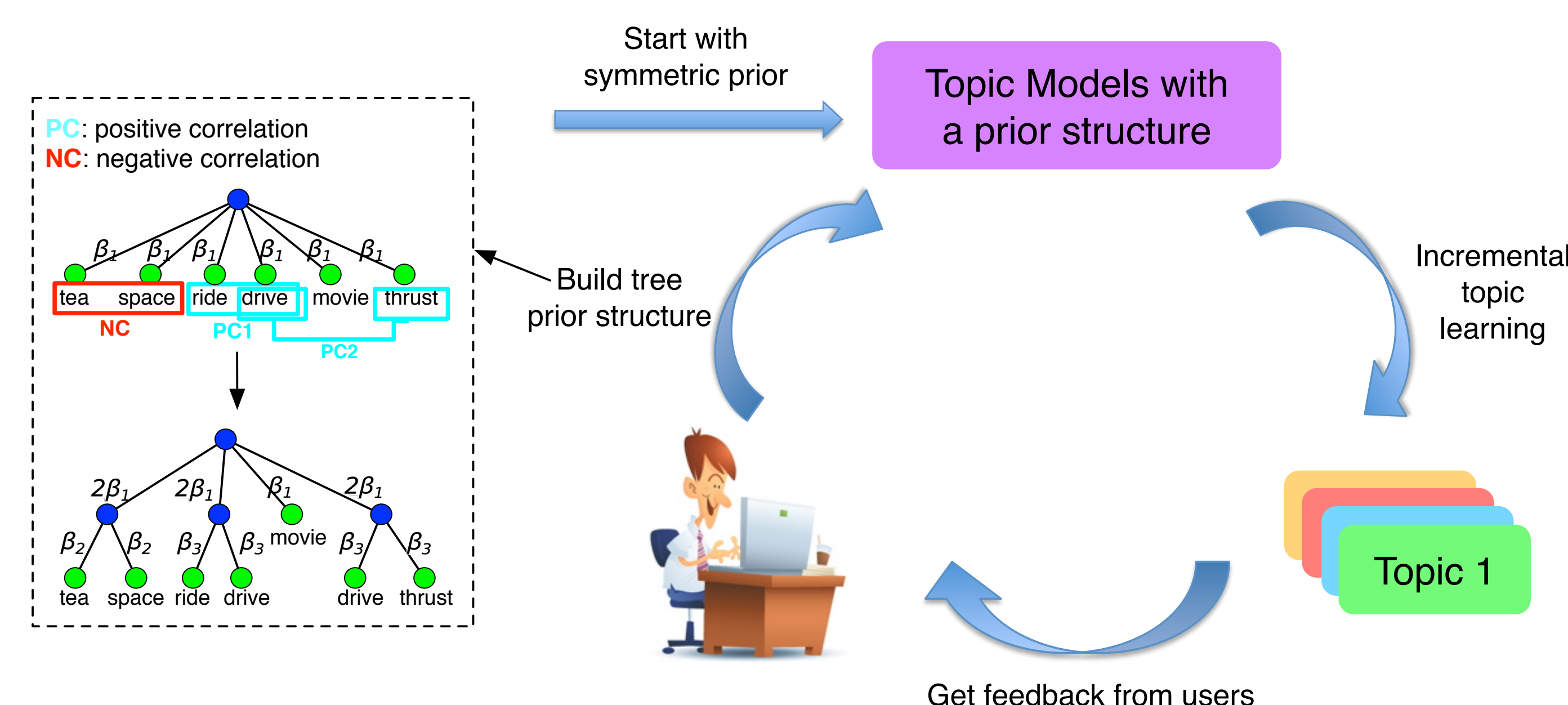
To help human experts uncover the structure of conversations effectively by

1. Allowing users to efficiently inject their insights into model building via *Interactive Topic Modeling* (ITM)
2. Discovering topic shifts in conversations using *Speaker Identity for Topic Segmentation* (SITS)
3. Visualizing interactively the dynamic topic structure of conversations

Argviz: System Overview



Interactive Topic Modeling



- ▶ Encoding users' feedback as correlations (including positive and negative)
- ▶ Building correlations into a tree structure as the prior of topic models
- ▶ Interactively and iteratively improving the topics

Speaker Identity for Topic Segmentation

The interface displays speaker identity for topic segmentation with the following examples:

- Gwen Ifill:** Senator Biden, you voted for this bankruptcy bill. Senator Obama voted against it. Some people have said that mortgage-holders really paid the price.
- Joe Biden:** Well, mortgage-holders didn't pay the price. [...] Barack Obama pointed out two years ago that there was a subprime mortgage ...
- Sarah Palin:** That is not so, but because that's just a quick answer, I want to talk about, again, my record on energy ...

The screenshot shows the Argviz interface with the following components:

- Topics:** A table listing topics (topic 3, topic 2, topic 1) with associated words and document references.
- Words:** A section for managing word associations, including 'important words', 'all words', 'ignored words', and 'stop words'.
- Interactions:** Red arrows and text indicate actions like 'Drag important words', 'Click to save', 'Drag ignored words', and 'Add new words'.
- Save changes:** A button to save the current state of the model.

Topic distribution is presented using a heatmap

Topic "Energy" highlighted

The screenshot shows the Argviz interface displaying a transcript and a topic cloud:

- Transcript:** A text area showing a conversation transcript with a vertical heatmap overlay indicating topic distribution over time.
- Topic Cloud:** A grid of topic clouds for various topics. The 'Energy' topic is highlighted, showing words like 'energy', 'oil', 'nuclear', 'make', 'clean', and 'climate'.
- Speaker:** A section showing speaker information and color coding.