

# WER99 at the NTCIR-15 QA Lab-PoliInfo-2 Classification Task

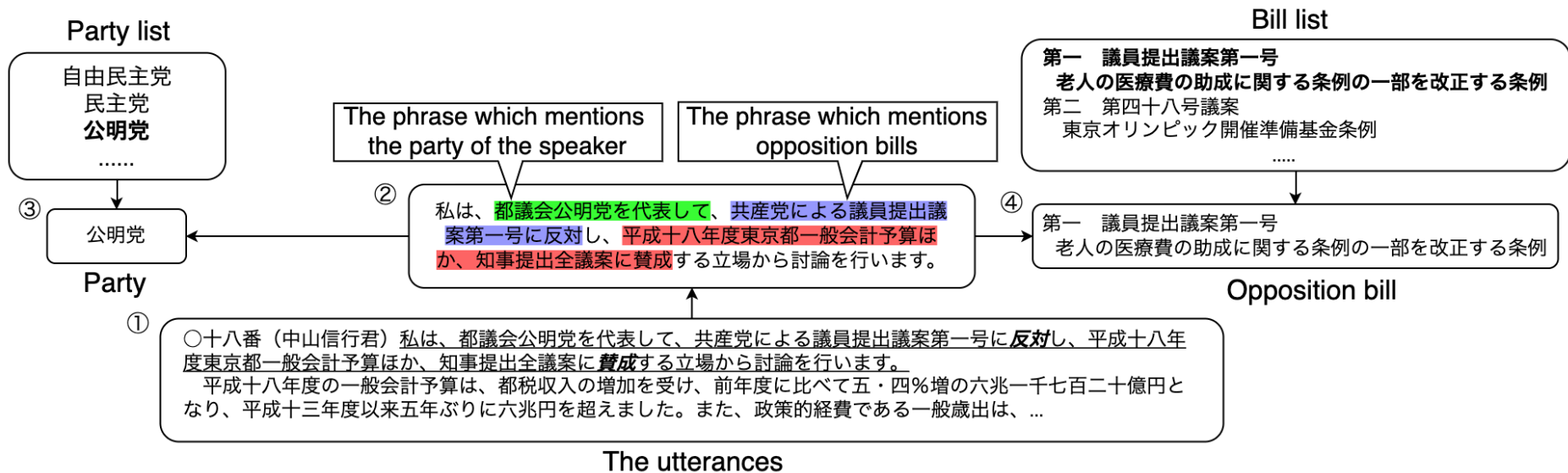
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# Overview

- In this task, we need to predict the stance of a political party on each bill.
- There are **two types of political party's stances**:
  - Stances that are **explicitly stated**
  - Stances that are **not stated** in utterances
- For the former, we apply a rule-based algorithm to predict stances from utterances.
- For the latter, we predict stances by analyzing the bill names.
- In addition to these methods, we use several methods to improve accuracy.
- Our method achieved the **highest performance** (99.75% accuracy) among the participants.

# From utterances

- We detect the stances of each party by a rule-based method from utterances.
- We extract sentences that include “賛成 (agree)” or “反対 (oppose)” words.
- We identify **the party name** and **the bills the party is opposed to**.
  - Divide the sentence into segments using the words “代表 (on behalf of),” “賛成 (agree),” and “反対 (oppose)” as clue words.



# From bill names

- For normal bills such as “東京都立学校設置条例 (Tokyo Metropolitan School Establishment Ordinance),”
  - We **tokenize a bill name** into n-grams by MeCab.
  - **Acquire the tendency of the stance of each party against the n-grams.**
  - From the count and proportion of stance (opposition/agreement) against an n-gram, we predict the stance on a bill.
- For budget bills such as “東京都病院会計予算 (Tokyo Hospital Account Budget),”
  - We do the aforementioned process without tokenization because same name bills are discussed every year.



# Using other clues

- Multiple bills are usually voted on at a time, and party stances against those bills are always the same.
  - e.g., 日程第十三から第二十三まで ... 条例外議案十件を一括して採決いたします。(We will collectively vote on Schedule No. 13 to No. 23 ... .)
- When a bill is passed, most parties agree with the bill. When a bill is rejected, most parties oppose the bill.
  - e.g., 本案は、いずれも委員会の報告のとおり決定いたしました。(These bills have been decided as reported by the committee.)
- When a chair speaks a certain phrase, the stances of all parties on the corresponding bills are an agreement.
  - e.g., お諮りいたします。本案は ... 決定することにご異議ありませんか。(Let me confirm. Are there any people who oppose the decision of ... ?)
- We also use some clues: “少数意見報告書 (the minor opinion report)”, joint submission information, and the stances of other parties.
- By using these clues, we improve the classification accuracy.

# Experiment result

- We report four variants of our proposed method:
  - Using plenary session utterances, committee utterances, bill names, and other clues.
- In the automatic evaluation, our method achieved 99.75% accuracy.
  - This is 3.2 points higher than those of the other teams' methods.
- We also achieved the highest performance among the participants in the human evaluation.

Other teams methods	Automatic evaluation	Human evaluation
Forst	93.88	85.2
akbl	94.98	89.2
knlab	95.31	83.4
Ibrk	96.50	-
Our methods	Automatic evaluation	Human evaluation
All Agreements	93.83	-
Utterances	96.43	-
Utterances + Committee utterances	97.39	-
Utterances + Committee utterances + Bill names	99.14	-
Utterances + Committee utterances + Bill names + Other clues	<b>99.75</b>	<b>98.2</b>

Thank you