

# POLITICIAN

## RE-WOCHAT 2016 - SHARED TASK

### CHATBOT DESCRIPTION REPORT

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#### Abstract

We present a question-answering system *Politician* designed as a chatbot imitating a politician. It answers questions on political issues. The questions are analyzed using natural language processing techniques and no complex knowledge base is involved. The language used for the interviews is Czech.

## 1 Politician's General Description

The system *Politician* enables users to interview a virtual politician. It opens a conversation with a standard greeting *Hello!* followed up by the question *What are you interested in?* Then it is the user's turn and he asks a question. Once morphological and syntactic annotations are available for his question, an appropriate answer template is selected from a manually created set. Then *Politician* replies to the question. The conversation is closed when the user does not pose any other question.

## 2 Politician Technical Description

The *Politician* performs a series of three basic steps visualized in Figure 1:

1. **Analyzing user question** – we use a pipeline of natural language processing tools, namely a morphological analyzer, a tagger, a parser, and a named-entity recognizer. For Czech, the procedures implemented in the natural

language processing (NLP) framework *Treex* are applied, see (Popel and Žabokrtský, 2010).

2. **Selecting answer template** – we manually designed a list of answer templates. Thus our task is to select an answer template that fits the question the best.
3. **Generating *Politician's* reply** – we transform the answer from the step 2 into a grammatically correct reply.

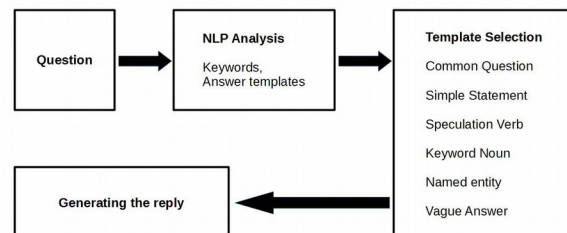


Figure 1: Chatbot overall architecture

Once the question is processed with NLP tools, the process of reply generation starts:

- Some basic criteria are applied to filter out common questions and simple statements.
- The nouns and verbs in the question are checked against the manually created list of keywords typical for present-day political conversations.
- The question is checked whether it consists of verbs of speculation such as *to think*, *to suppose*, *to believe*.
- If one of the detected keywords is the subject of the sentence or the subject attribute,

then it is chosen for an appropriate answer template selection. If neither is dependent on the subject, the choice of the keyword is made randomly.

- The named entities recognized in the question are analyzed.
- If all the preceding steps are considered failed, then a vague reply is provided. It is selected randomly from the set of replies prepared for such a situation. For example, *I analyzed these issues in detail in my press release yesterday and I do not intend to get back to them any longer.*
- When the answer template is selected, a grammatically correct reply is generated so that *Politician* inserts the keywords detected in the question into a reply in a proper grammatical form. For example, from the template *[keyword] [to be] [fruit] of our long-term efforts.* we can generate the reply *Reforms are the fruit of our long-term efforts.*

### 3 Sample Dialogue Sessions

We provide a sample conversation selected from the data collected at public promotion events. We use italics to emphasize the words, which were selected as the keywords for the answer template selection.

Table 1: Sample Session with the Politician

1	POLITICIAN: Hello! What are you interested in?
2	USER: Good afternoon. How much is the Czech state <i>debt</i> per capita?
3	POLITICIAN: This is a very good question. We have already voted to create a special committee that will deal with the debt. Let us wait for its conclusion.
4	USER: What impact will <i>inflation</i> have on Czech market?
5	POLITICIAN: This topic will be emphasized in the next election campaign.
6	USER: What is your opinion on amnesty granted by

	President <i>Václav Klaus</i> ?
7	POLITICIAN: I do not like this person at all.
8	USER: Do not you think that MPs' <i>salaries</i> are too high?
9	POLITICIAN: Unfortunately, judging this topic is not within my competence. I am sorry, but I have to go now, I have an important meeting.

### 4 Turing Test

So far we have been presenting *Politician* mainly for students e. g. attending a university open house. We were conducting the Turing test (Turing. 1950) during these events as follows:

- The human answerer was instructed to pose only vague and non-specific replies. The users were told to ask only political questions. If they did not follow these instructions, we did not include such conversations into a final evaluation.
- Each conversation contained four user questions.
- Each user did two interviews, one with the human and one with *Politician*. Then he judged in which of the two interviews he was interviewing the computer.

In total, we conducted over 30 conversations on political topics. The *Politician* was able to fool users more than 33% of the time. We do not provide exact number because the boundary between relevant and irrelevant conversations is highly disputable. One third of the users fooled were confused by misspelling errors, half of them considered *Politician*'s replies more natural and the rest of them did not have any relevant reason.

### References

- Popel, M., and Žabokrtský, Z. (2010). TectoMT: Modular NLP Framework. *In Proceedings of IceTAL, 7<sup>th</sup> International Conference on Natural Language Processing*, pages 293-304, Reykjavík, Iceland.
- Turing, A. M. (1950). Computing machinery and intelligence. *Mind*, pages 433-460.