Partisan Responses Generated from Local Knowledge Graphs

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Abstract—Question Answering (QA) is one of the most actively researched areas in Natural Language Processing. Ideally, a question answering system should be able to produce a full natural language answer that contains factual information. Even though significant progress has been made in both extractive question answering and text generation, generating extensive answers based on structured information (i.e. from knowledge graphs or tables) still remains an open task. In this paper we apply two models to a dataset created from the U.S. Congressional Record corpus to generate text, namely GPT-2 and GraphWriter. Even though the text generated using GPT-2 is gramatically correct, it lacks background knowledge. GraphWriter attempts to solve this issue by incorporating information from knowledge graphs into the generated text.

I. INTRODUCTION

Question Answering (QA) is one of the main tasks in Natural Language Processing(NLP). The goal is to provide an answer to a question posed in natural/spoken language, often from a structured source of information such as a knowledge graph(see Figure 1). A large proportion of the work in this area ([1], [2], [3], [4]) focuses on extractive question answering (i.e. given a question and a paragraph, identify the answer to the question in the paragraph). Even though the reading comprehension performance of such systems has increased considerably since the advent of Transformerbased neural network architectures[5] which can produce very accurate answers, such models still come with several shortcomings. The user of such a system is provided only with a span of text from the given context that contains the answer, not a full sentence or paragraph. Also, if we want to search for the answer in a collection of documents, a potential answer will be returned for each document. Merging these answers into one coherent response requires further work. Recently, there has been an increased interest in text generation from knowledge graphs ([6], [7], [8]). This work focuses on providing the language models with external knowledge in the attempt to generate text that is factually correct. However, such methods still have to be adapted to the field of question answering.

We adjust the model from Yang et al.[6] for a dataset of questions and answers constructed from the U.S. Congressional Record. We seek to investigate the political slant of the generated responses, i.e. whether a Republican response differs from a Democrat response. Several studies have shown that the particular wording of a text can reveal the

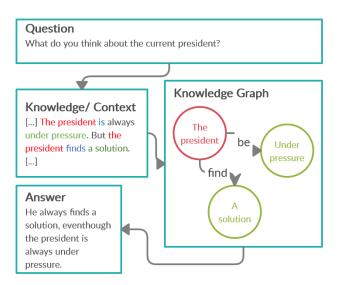


Figure 1. Pipeline to generate a response via knowledge graphs.

author's political leaning. For instance, what Democrats refer to as "estate tax" is called "death tax" by the Republicans. We hypothesise that, when asked the same question, a Republican would answer differently compared to a Democrat.

The main contributions of this work include:

- We provide a method for generating a dataset consisting of question-answer pairs from the U.S. Congressional Record.
- We give an implementation for creating a knowledge graph from text.
- We investigate how an existing method [8] designed for generating text from knowledge graphs performs in the context of open-domain question answering.
- We publish the code for this project on GitHub¹ so that it can be used for further research.

Based on a given question, our method enables a user to retrieve party-dependent speeches, which can be used to create a knowledge graph. The knowledge graph synthesises the information from the speeches by aggregating it and removing duplicate information (duplicate nodes as well as duplicate edges). Furthermore, this knowledge graph can be

¹https://github.com/rostro36/Partisan-Responses

fed to a language model in order to generate text based on the party-specific information from the graph.

II. RELATED WORK

The paper unites several aspects of natural language processing, first the creation of knowledge graphs from text, then text generation from knowledge graphs and lastly a style analysis between two parties.

A. Knowledge Graph Augmentation

The paper from Chen at al.[9] gives insights about how to construct a political opinion-aware knowledge graph based on an existing knowledge base by incorporating ideological attributes on entities in the knowledge base. The key difference between their and our approach is that this paper mines partisan speeches and creates partisan knowledge graphs, that do not need an induction of partisan slant, but the existing partisan knowledge graphs could get extended with this approach.

B. Text Generation

A desirable characteristic of a question answering system is the ability to generate answers that are consistent with the question. Yang et al. [6] show that integrating facts from a knowledge base is useful in topic-to-essay generation as it helps generate texts that are more novel, diverse and topic-consistent. They propose a memory-augmented neural model trained using adversarial learning that incorporates knowledge from ConceptNet[10]. The generator is an encoder-decoder model that takes a list of topics as input and produces text consistent with the topics by using the attention mechanism to find the most relevant concepts from the memory matrix. The discriminator is used to evaluate whether the generated text is consistent with the input topics.

In terms of hierarchical text generation, the paper of Fan et al. [11] partly aims to resolve long-range dependency and creativity in story generation by designing a convolutional Seq2Seq model with self-attentive decoder based on a prompt trained from convolutional language model. The generation process uses top-k random sampling for words to avoid repetitiveness (in beam search) and unlikely words (in completely random sampling).

Similar to the previous paper, Koncel-Kedziorski et al. [8] apply a state-of-the-art information extraction system that is used to construct knowledge graphs on texts with implicitly strong structural format. In this study, such graph and text features are encoded via a Graph Transformer and a Bi-RNN in the training stage. An attention-based decoder then generates an abstract of scientific papers from encoded embeddings. Unlike the previous paper, the code is open and can be used and adapted by others, like for this paper.

C. Style Transfer

Style transfer in language has received a lot of attention recently. The key challenge is preserving the semantic content of the generated text while controlling aspects such as sentiment, tense, gender or for this paper most importantly political slant.

Xu et al. [12] present a paper that does sophisticated style transfer using a cycled reinforcement learning technique that does not require paired samples for performing sentiment-to-sentiment translation. Their system employs a neutralisation module that extracts the non-emotional words from the input and an emotionalisation module that reconstructs the original sentence. They use policy gradient reinforcement learning for training the model and use rewards for content preservation and sentiment confidence.

Our way of creating two different styles is by building different knowledge graphs and generate texts from there, it also trivially makes sure that the answers not only use the correct style of words but also the correct content. E.g. the phrase "Yes, I am in favour of the death tax." sounds Republican, but has a Democrat message.

D. Evaluation Metrics

Due to the unsupervised nature of text generation, the evaluation stage tends to involve much effort from human experts. Therefore, automatic evaluation metrics is a demanding foundation to achieve reasonable and promising results. Diversity and creativity in dialogue response imposes challenges in current unsupervised evaluation metrics. The survey provided by Liu et al. [13] examines pros and cons of two mainstream methods-word overlapbased(BLEU, ROUGE, METEOR) and word embeddingbased (Greedy Matching, Embedding Average and Vector Extrema)-in such text generation tasks. The empirical study shows a low correlation between these metrics and human judgements in certain tasks, and warns against overly usage of them without thorough consideration into specific task. Without better recommendations, it encourages variations in word embedding-based method to evaluate dialogue responses.

III. DATA AND SUMMARY STATISTICS

The *United States Congressional Records* are archived in a daily edition and a bound edition. We chose the bound edition from 43rd to 111th (1873-2011) U.S. Congresses [14] as the source corpus since the bound edition is a permanent version organised from daily edition. The debate format of these speech transcripts is assumed to consist of sufficient questions over diverse topics. Meanwhile, these records are expected to reflect the partisan divergence of the discourse and perspectives. For example, a Democrat senator uses "estate tax" as in "I am especially disappointed in the provision on the estate tax.", while a Republican senator addresses the topic with the phrase "death tax" as

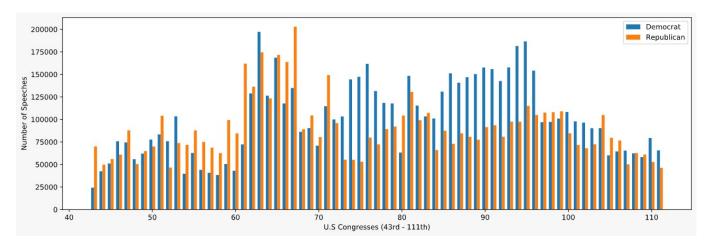


Figure 2. Amount of speeches per Congress. Blue are Democrat speeches, red are Republican speeches.

in "The same people that support death tax seem to be trying to say they inherited every problem that exists." Such differences are a key distinguishing feature between the parties, both for generating text like a partisan politician and also distinguishing between the parties.

The dataset contains full speeches parsed per speech with metadata such as speakers and their party affiliation. The plain text of speeches was converted through optical character recognition (OCR), so that we notice non-negligible spelling errors especially around hyphens at the end of the original documents and punctuation errors, where full stops get mistaken for comma, which then have to be resolved as some libraries use whole sentences as tokens. The dataset in total contains 13,309,706 speeches over 11 parties where we only extracted bi-partisan speeches either from Republican or Democrat speakers, resulting in 13,179,121 remaining speeches. The focus on Republican and Democrat speakers only is due to their mainstream impact, textual abundance and assumed conflicting ideology. The spread of the amount of speeches from the two parties over the timespan is illustrated by Figure 2. The dataset in total has 46.9% Republican speeches with an average length of 644.37 characters(included spaces and punctuation), and 53.1% Democrat speeches with an average length of 706.21 characters. The ruling party in House and Senate is also weakly inferred from the amount differences. Each edition has at least 93,653 speeches. The amount of speeches shows an increasing trend from the 43rd Congress to the 65th Congress, then drops quickly in subsequent Congresses, slightly increases again from 72nd to 95th and drops again until the 111th Congress.

Moreover, we searched over the entire corpus regardless of the partisan affiliation for questions(-and-answer pairs), though the construction is left to explain in details in Section IV. Associated with the corpus, the researchers who provided the dataset also summarise partisan phrases grouped in

22 substantive topics. Each topic contains keywords, which were built from partisan phrases in this corpus and some manual addition[15], helping to extract questions. There are 43,839 effective questions left after removing rhetoric or organisational questions like "Do I have time remaining?".

IV. METHODS

The tasks of generating party-specific responses for questions can be divided in the following sub-tasks:

- obtaining a dataset that has the right format for training the language generation model i.e. a dataset consisting of questions paired with answers (IV-A)
- given a question, finding the most similar speeches (IV-B)
- forming knowledge graphs based on these adjacent speeches (IV-C)
- generating responses using the information from the knowledge graphs (IV-D)
- evaluating the responses (IV-E)

The database for finding adjacent speeches is pre-computed, like the models used in the following tasks, but the speeches are related to the question and have to be collected at runtime which implies that also the knowledge graph, which is based on these speeches is computed afterwards at run-time. Figure 3 gives a visual overview of the following section.

A. Dataset Creation

Training the language generation model requires a dataset consisting of paired questions and answers. As many of the speeches from the U.S. Congressional Record are merely organisational (e.g. "Will the Senator yield?", "Mr. Speaker, I offer a motion to commit."), they have to be filtered out. In order to obtain this, we use the list of topic-specific phrases associated with the substantive topics identified in Gentzkow et al. [15]. Each speech containing interrogatory sentences from the whole corpus is paired with the next speech,

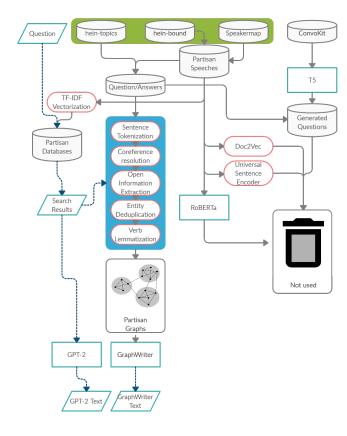


Figure 3. Overview of the processes in the paper. Dotted lines are at run-time, full lines are pre-computed/training. Cylinders are data, small rectangles are models, trapezoids are input/output, ovals are processes. The green data is all bundled in the Stanford data set[14].

preserving only those that contain at least one phrase from the phrases list. When a speech contains multiple questions it is unclear which one the next speech answers, thus we only preserve speeches containing a single question. We further filter out the answers that are too short (they contain a single sentence) or too long (they contain more than 50 sentences) and those whose speaker is neither Republican or Democrat.

Another path that was researched was creating questions based on answers. To do so, the T5-Base[16] model of the simpletransformers² library was used. Since to our knowledge there is no dataset containing questions and answers from the U.S. Congress, a similar one was used from Great Britain's Question Time, which is included in ConvoKit³[17]. The task was to generate a request (question) for a given an answer/speech from a politician.

The first test to validate on the British corpus (II) where the difference between the real answer and the generated one is apparent, but is in a region, where it could be used as training for later downstream tasks. The American examples (III) still have British titles in them such as "Honorary Friend", which do not exist in the U.S., therefore the model could not grasp that some titles only exist in the training and not in the test contexts. Since generated requests also may not be questions and go nowhere, the filtered questions were preferred.

B. Speech Search

Given a question, the first step consists of extracting the speeches that are the most relevant to the question. This search step is performed on the whole corpus of congressional speeches⁴, following a preprocessing stage. All speeches as well as the questions are stemmed and then vectorized using TF-IDF. We extract the K-Nearest Neighbours of a question by computing the cosine similarity between the question vector and the vectors of the speeches, in an exhaustive search manner. Even though it is reasonably fast, this step could be sped up by using Approximate Nearest Neighbours. However, this appears to perform well only when the dimensionality of the vector space is not too large (up to 1,000 dimensions) and could be used together with doc2vec or other document embeddings. Our experiments showed that, among all vectorization methods that we tried (TF-IDF, doc2vec, Universal Sentence Encoder), the quality of the search results is highest when TF-IDF is used. Examples of search results for each of the 3 methods can be found in Appendix B. The search results returned when using doc2vec are all short answers that are unrelated to the question. The speeches returned when using USE are on the same topic as the question but often do not contain an answer to it. Thus, we proceed with TF-IDF and exhaustive search.

C. Knowledge Graph Construction

Most of the best known knowledge graph databases like ConceptNet[10] have rather mundane relations like "Pirmin Schwegler –is born in– Ettiswil". They are too big to have locally and may be tedious to query for a sizeable, dense subgraph. Also many of the nodes and edges of such a graph would be unrelated to U.S. politics. The easiest solution to this is to create a knowledge base from the congressional speeches. For doing so, the sentences first had to be split from each other with nltk's sentence tokenizer⁵ before AllenNLPs open information extraction⁶ could be used to generate <SUBJECT, OBJECT, PREDICATE> triplets. In order to avoid inconsistencies, triplets which do not have this form, e.g. have more objects, were discarded together with those that have auxiliary verbs (bar "to be") as predicates. To get better triplets, huggingface's neuralcoref ⁷ was used, as it

²https://github.com/ThilinaRajapakse/simpletransformers

³https://convokit.cornell.edu/documentation/parliament.html

⁴We only remove the speeches that contain a single sentence and the speeches that are too long.

⁵https://www.nltk.org/

⁶https://demo.allennlp.org/open-information-extraction[18]

⁷https://github.com/huggingface/neuralcoref

exchanges many references such as "he" with the correct agent, which eliminates potential misunderstandings.

These triplets are the basis for the knowledge graph which were created using the graph library NetworkX⁸. A predicate is represented as a directed edge that connects two entities(nodes). To make the graph denser the predicates were lemmatized using spaCy's lemmatizer⁹ and the entities were deduplicated based on their similarity, obtained using Universal Sentence Encoder¹⁰. To keep track of the already existing nodes hnswlib¹¹ was used.

D. Response Generation

The workhorse for this task is GraphWriter¹². In it's original form, GraphWriter uses it's own pre-processed AGENDA dataset that only has 7 possible relations, but 5 types of entities, unlike our data, which has more than 1000 relations (verbs) and only one generic type of entity. Then it uses it's graph encoder decoder network with four attention heads to get probabilities, which then get explored with beam searches and after post-processing, the summaries of the scientific articles in the AGENDA dataset are provided.

Because there does not exist a pre-processing script in the GraphWriter repository, the pre-processing was reverseengineered. The implementation of the pre-processing is done similarly to the one in the previous subsection IV-C. To reduce the resource intensity, the coreference resolution was done ahead of the open information extraction but more care was needed in constructing the knowledge graphs, as GraphWriter does not use nested relations while training. Using this additional criteria, all speeches from the dataset curated in subsection IV-A, which did not have a relation and those which have either a too long question or answer was dropped. In the end were about 30,000 question-andanswer pairs available for training. Those were then split similarly to GraphWriter with 1'000 validation samples and the rest as training. To train GraphWriter it was first run for 40 epochs with a learning rate of 0.1 and then from the checkpoint with the lowest validation loss again for 20 epochs with a learning rate of 0.05. The used checkpoint was the one with the overall lowest validation loss.

E. Response Evaluation

To evaluate the political slant of responses a RoBERTa-base model[21], which is an adaption on the widely used Transformer model BERT[2], was trained on the speeches that were recorded in the last 14 years with the help of the simpletransformers library¹³ and the following hyperparameters: max_seq_length=128, sliding_window, learning rate=4e-6. Even though multiple configurations were

tested, the models degraded into predicting only one class, resulting in an accuracy of 47%, therefore they could not be used in other downstream tasks.

In addition to that, the performance of a lexicon-based approach was investigated. The U.S. Congressional Record corpus provides a list of the 1,000 most partisan phrases for each session of the congress, together with scores for partisanship. These average of these scores was used to compute an overall partisanship score for each speech. The accuracy using this method proved to be only slightly higher than random guess, thus we did not proceed with it further. On closer inspection, it could be noticed that the partisanship scores for the phrases, as well as their scores vary widely between each year of the congress and a large proportion of them cannot be assigned consistently to one party, thus being of little use for classification.

V. RESULTS

A. Dataset

Appendix C displays some pairs of questions and answers from the dataset created using the U.S. Congressional Record. In general, the method described in Section IV-A manages to filter out organisational and rhetorical questions. Moreover the speeches answer their paired questions. However, these pairs lack the advantages of a dataset designed for question answering, where the answers are generally short and concise paragraphs. The parliamentary speeches often contain formalities such as "Mr. President, I, again, will be happy to attempt to clarify this issue for my colleague and friend." and they are rather long, containing an answer to the question but also additional unrelated information.

B. Speech Search

Among TF-IDF, doc2vec, Univeral Sentence Encoder, the most accurate search results were obtained when using TF-IDF. All the three methods were tested on the same questions and the search results were evaluated using manual inspection. Examples of search results for the three methods are shown in Appendix B. Table VIII shows some examples of questions, together with one of the retrieved speeches for each party using TF-IDF. The list of questions on which the search was tested on was created manually starting from issues that Republicans and Democrats generally disagree on. For testing purposes, we also added some questions related to topics on which both parties presumably share similar views. There are indeed noticeable differences between the results for the two parties and in most cases the speakers appear to have opposing views that match their parties' stance.

C. Knowledge Graphs

Figure 4 shows a knowledge graph for one speech that answers the question "Should abortion be illegal?". It becomes apparent that the nodes/entities which the open-information-extractor provided are rather complicated and

⁸https://networkx.github.io/

⁹https://spacy.io/api/lemmatizer

¹⁰https://tfhub.dev/google/universal-sentence-encoder/4[19]

¹¹ https://github.com/nmslib/hnswlib[20]

¹²https://github.com/rikdz/GraphWriter/[8]

¹³https://github.com/ThilinaRajapakse/simpletransformers

need more clean-up/lemmatization to generate non-trivial sentences. This also adds to the sparsity of the graph, which is apparent by looking at the many unconnected shards. In a best case scenario, the graph would be very dense, so that a text generator has many interesting choices to choose if it is at some entity. The easiest remedy for this problem is more good data, that is similar to the already existing data. But more data also makes the graph bigger and harder to handle, as even with one big speech some problems with space on GPUs came up.

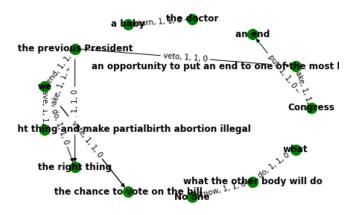


Figure 4. Example of knowledge graph constructed from one of the speeches. Entities (nodes) are connected with each other with directed edges, which represent verbs. The edges are named according to the stemmed verb and have weights (both parties, Republican, Democrat) annotated next to the name.

D. Response Generation

To generate text, two methods were used, the first one is GPT-2 and the second one is with GraphWriter, both discussed in the methods subsection IV-D. Looking at the answers in Table I, which is an excerpt of the more extensive corpus in the appendix section E, we can clearly see a difference between GraphWriter and GPT-2. GraphWriter has a lot more repetitions and is in most cases barely coherent. The most coherent parts are standard phrases, like "If the gentleman will yield". It can not be concluded that the problem is with the large amount of verbs/relations that GraphWriter has to deal with or if it struggles because of the imbalance of the verbs, that it massively favours "yield". The capital words that it uses are agents that it learnt from training and are, as expected, on topic or organisational, this means with these words, a generated text will sound like a party, but the message that is sent is incoherent. Going a bit more in-depth with GPT-2, we can see that, responses are rather short. The first response is a objective fact and less of an opinion or comment. The third answer is an opinion that probably can find supporters on both sides of the aisle as the Republican President George W. Bush started the still ongoing "War on Terror"[22] and "Terrorism" is also the

Question:	Should abortion be illegal?
GraphWriter:	Mr. Chairman, if the gentleman will yield to the gentleman from Texas, WE, WE, WE, and WE that may see that WE in the United States, to see AN UNDERSTANDING in the United States. If we can, WE we have AN UNDERSTANDING in the United States, and we can not do that, and WE we can see how WE we can get AN UNDERSTANDING to see how WE can come to see how WE we can come to see how WE we can come to work and to see AN UNDERSTANDING in AN UNDERSTANDING that may see WE in the future. If we can get AN UNDERSTANDING that will see WE in the future, WE we can see AN UNDERSTANDING that WE can come to work and to see how WE wE can come to work and to see how WE wE can come to work and to see how WE wE can come to work and to see
GPT-2:	The Supreme Court has ruled that abortion is illegal under the Fourteenth Amendment.
Question:	What do you believe about tax increases?
GraphWriter:	Mr. Chairman , THIS the gentleman from Illinois Mr. Chairman , if the gentleman will yield , THIS the gentleman from Pennsylvania , who is a member of the committee , who is a member of the committee , who is a member of the Committee on Appropriations , who is a member of the committee , who is
GPT-2:	I think that the tax increases are going to be very good for the economy. I think that the tax increases are going to be very good for the middle class. I think that the middle class is going to be very happy.

Table I

EXAMPLES OF QUESTIONS, TOGETHER WITH GENERATED ANSWERS USING GRAPHWRITER AND GPT-2. THE FIRST THREE GPT-2 RESPONSES ARE SHORT, BUT REASONABLE, THE SECOND THREE RESPONSES SHOW SOME CONTRADICTIONS. GRAPHWRITER WAS NOT ALWAYS REPORTED AS THE RESULT IS SHOWN WITHOUT NEEDING MORE SPACE.

first listed threat on the democrat global threat list[23]. The second answer is the only obvious partisan response as in general increasing taxes is supported by the Democrat party. The other three responses show contradictions, one of the most obvious being in the sentence: "The government regulates the free market, but it does not regulate the free market." Even though some of those questions should be trivial, like "Should the citizens of the ["Land of the Free"] be free?", sometimes inconsistent reasoning gets applied.

In general, the reasonable answers are about twice as frequent as contradictions. However, a clear distinction between the parties is not visible. The answers are grammatically correct, but sentence repetitions can happen.

VI. CONCLUSION

Our efforts show that the problem of generating texts based on an unstructured information basis is really hard and needs a lot of tricks. Be it from finding a better way to deduplicate different entities, to bundling relations better together and finding a reasonable size for all of this, that is on one side big enough that the knowledge basis is large enough to warrant interesting responses and on the other side small enough, that it can be dealt with, both for the model, that it does not collapse and also for the hardware, that it fits into RAM or VRAM. A first step into the right direction would be to test the methods that we have shown in this paper to find speeches, extract knowledge and then generate text with an even better dataset, without OCR errors and if possible less noise from organisational questions.

ACKNOWLEDGEMENTS

We thank Professor Elliot Ash for the guidance offered throughout this project and for his helpful suggestions. We also thank the authors of the paper [8] for making available their source code. This enabled us to only adjust the original code instead of re-implementing it from scratch, which saved us a lot of time and effort.

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APPENDIX A. GENERATED QUESTIONS

The first part of the generated questions from Section IV-A cover a test made with British context (Table II) and the original request. In Table III is a context and a request generated from the American corpus.

APPENDIX B.

SEARCH RESULTS USING DIFFERENT METHODS

We show how the search step performs using three different methods: TF-IDF, $doc2vec^{14}$ and Universal Sentence Encoder¹⁵. Examples of questions together with the retrieved speeches using the three methods are shown in Table IV, Table V and Table VI.

APPENDIX C. DATASET

Table VII shows some examples of question and answer pairs obtained using the procedure described in Section IV.

APPENDIX D. SPEECH SEARCH

Found speeches by searching for the question using TF-IDF as it is discussed in Section V-B, there is one example for both parties per question.

APPENDIX E. GENERATED RESPONSES

Table IX shows some additional questions and their generated responses, according to Section IV-D. The discussion to it is in Section V-B.

¹⁴https://radimrehurek.com/gensim/models/doc2vec.html

¹⁵https://tfhub.dev/google/universal-sentence-encoder/4[19]

Answer/ Context	The special fund of £ 34 million that we have provided for the historical inquiries team to look into the unresolved murders of the years of the troubles is, of course, additional money that does not come out of the day - to - day policing budget. It is important that we focus all the resources that we can on day - to - day policing—that is, on neighbourhood policing and dealing with antisocial behaviour, for example—but we must also deal with the remaining threats from dissident republicans, loyalist paramilitaries or those involved in organised crime networks. I know that the hon Gentleman cares very deeply about such matters, and that he will agree that we must remain very strongly focused on them.
Question/ Gener- ated:	Although the hon Gentleman knows that his Government are on the right side of their budgetary policy—north of 50p—will he comment on the general welfare measures that the Home Secretary and Cabinet have proposed to fund?
Question/ Truth:	Does not the Minister's very proper condemnation of the events of yesterday and the weekend underline the necessity for keeping an absolutely first - class police force in Northern Ireland, under the inspired leadership of an admirable Chief Constable? Will he ring - fence expenditure on the past and try to ensure that is totally separate from the running budget for police needs?

 ${\bf Table~II}\\ {\bf Example~of~generated~questions~in~comparison~to~the~truth~given~an~answer~from~the~British~data}.$

Answer/ Context	Mr. Speaker, I thank the gentleman. Mr. Speaker, you dont have to look far to see that families across this country are gripped with a tremendous amount of fear and uncertainty. They fear for their jobs, if they have one. They fear for their future as they see their 401(k)s, their college savings accounts collapse. They fear that their elected leaders dont get it. They fear that this Congress may very well be incapable of change, incapable of producing the kind of results that they want and to get it right. Under existing House rules, when a bill is brought to the floor that includes a tax increase, the minority has a right to offer a motion to strike that increase, and the Republican minority had done that on nearly half a dozen occasions over the past 2 years. With this rule change now, though. House Democrats are trying to push through what we Republicans will no longer have, the ability to say "no" to higher taxes. We will not be able to simply strike a tax increase and demand an up or down vote. In fact, the only option we will have would be to replace one tax increase with another. There will be no ability for us to cut taxes to lighten the burden on the middleclass families that are hurting right now. One can see that this rule change makes it a lot easier for the Democrat majority to In fact hide tax increases inside other larger bills. In fact, that is why all of us are sitting here scratching our heads. If the House Democrats feel a tax increase is necessary, then why wouldnt they allow for a full and open debate? Why not let the American people have a say? Why not let the hardworking people of this country hear why Washington is once again looking to take more of their hard earned money? Either way, what is clear, this type of partisan rules change flies in the face of a new era of openness and transparency that Presidentelect Obama has promised, I take the Presidentelect at his word, I believe he wants transparency, openness, and debate, I believe he wants Washington to begin to do business differen
Question/ Gener- ated:	Will the Prime Minister explain to the House the plight of thousands of students and parents as a result of economic recession and, if possible, to some employers, teachers, doctors and other social workers who may have to live with family

Question:	What reforms were adopted by the 110th Congress?
Speech:	m." The Omnibus Public Land Management Act of 2009 is a collection of over 150 public land bills that were reported from the Committee on Energy and Natural Resources during the 110th Congress, for which we have not been able to get unanimous consent to take up and pass during the 110th Congress, I have included them in the Omnibus Public Land Management Act of 2009 to facilitate their early consideration in the new Congress, and not "primarily at the request of a Senator." Nevertheless, even though no Senator has specifically requested me to include a congressionally directed spending item in the Omnibus Public Land Management Act of 2009, in the interest of furthering the transparency and accountability of the legislative process, I have posted on the Web site of the Committee on Energy and Natural Resources a complete list of all provisions in the Omnibus Public Land Management Act of 2009 that authorize a specific amount of spending authority that is targeted to a specific State or locality, other than through a statutory or administrative formuladriven or competitive award process. The list includes the name of the principal sponsors of the Senate bills in the 110th Congress that have been incorporated in the Omnibus Public Land Management Act. In addition, I have added several other nonpublicland measures from the 110th Congress at the request of the majority leader. Most of these provisions were included in the Advancing Americas Priorities Act, 3297in the 110th Congress. They include: the Christopher and Dana Reeve Paralysis Act, subtitle B of title I of S, 3297, four parts of subtitle B, relating to oceans, of title V of S, 3297, and title VII of S, 3297, relating to the authorization of a greenhouse facility for the Smithsonian Institution. These provisions were determined not to constitute "congressionally directed spending items" in the Advancing Americas Priorities Act. See 154 Cong. Rec, 1657374. July 26, 2008. In addition, I have added the Coastal and Estuarine Land Conservation Program Act, H.R,
Speech:	Madam Speaker, let me congratulate you for your reelection as Speaker of the House. It is an honor that you tave served with great distinction and verve, I look forward to more of your continued leadership in the 111th Congress. Mr. Speaker, I rise today in support of H. Res, 5. Adopting the rules for the One Hundred Eleventh Congress. The House Rules Package provides commonsense reforms that will enable Congress to work more efficiently for America. In the 110th Congress. Democrats put forth critical measures to restore integrity and accountability to the House. These reforms were the most sweeping ethics and lobbying reforms since Watergate and has changed the way Congress does business in Washington. The reforms adopted by the 110th Congress included banning gifts from lobbyists, prohibiting the use of corporate jets, mandating ethics training for all House employees, establishing a new, independent Office of Congressional Ethics, and ensuring transparency for budget earmarks by requiring the full disclosure of earmarks in all bills and conference reports. The Rule Package for the 111th Congress builds upon these reforms to further strengthen the integrity of Congress. Key provisions include closing the loophole regarding "lameduck" Members negotiating postCongressional employment, codifying additional earmark reforms adopted in midterm in the 1 10th Congress, continuing the Office of Congressional Ethics, maintaining strong PAYGO rules, and improving Congresss effectiveness by removing an abusive practice where popular measures are killed through unrelated. "gotcha" amendments on motions to recommit.
Question:	What do you believe about tax increases?
Speech:	Madam Speaker, today, the House is again going to consider the Democrat SCHIP Expansion Act. This polarizing expansion of the welfare state was stopped by the veto pen last year, and thats where It ought to stay. Once again, the bill fails to ensure that all lowincome children will be covered, but, instead, it is going to increase the number of adults on SCHIP. Once again, the bill will grant health care benefits to illegal aliens. The bill will force the taxpayer to pay the health care premiums for children who already have quality, private health insurance. Even though Presidentelect Obama promised we wouldnt tax anyone making less than \$250.000 a year, this bill will impose the most regressive tax on the poor in history with the tobacco tax increase. It is shameful that the Democrats are playing politics with Americas needy children, I urge all of my colleagues to vote against this bill.
Speech:	Madam Speaker, I think that, I would hope, that not only my colleagues but the American people realize that this bill today contains a \$72 billion tax increase on the American people, what Congressional Research Service calls the most regressive of taxes, because it is tobacco taxes. But this is a tax increase that is coming full steam ahead at us. And. Madam Speaker, it is not there to go into a program that we all originally supported the way SCHIP was originally set up. This expanded SCHIP goes to middleincome children, it does not focus on low income and uninsured children. That is a sad day for us. Indeed, part of the 900.000 children that are expected to be added already have access to health insurance, I would encourage all of my colleagues to vote against the tax increase and vote "no."

Question:	What reforms were adopted by the 110th Congress?
Speech:	The majority leader is recognized.
Speech:	The Senator from South Carolina.
Question:	What do you believe about tax increases?
Speech:	Mr. President, the next vote will be on Monday at about 5:30 p.m.
Speech:	Mr. President, I anticipate about 5 minutes.

 $\label{thm:constraints} Table\ V$ Examples of questions, together with 2 of the retrieved speeches using DOC2VEC.

Ouestion:	What reforms were adopted by the 110th Congress?
Speech:	Madam Speaker, let me congratulate you for your reelection as Speaker of the House. It is an honor that you tave served with great distinction and verve, I look forward to more of your continued leadership in the 111th Congress. Mr. Speaker, I rise today in support of H. Res, 5. Adopting the rules for the One Hundred Eleventh Congress. The House Rules Package provides commonsense reforms that will enable Congress to work more efficiently for America. In the 110th Congress. Democrats put forth critical measures to restore integrity and accountability to the House. These reforms were the most sweeping ethics and lobbying reforms since Watergate and has changed the way Congress does business in Washington. The reforms adopted by the 110th Congress included banning gifts from lobbyists, prohibiting the use of corporate jets, mandating ethics training for all House employees, establishing a new, independent Office of Congressional Ethics, and ensuring transparency for budget earmarks by requiring the full disclosure of earmarks in all bills and conference reports. The Rule Package for the 111th Congress builds upon these reforms to further strengthen the integrity of Congress. Key provisions include closing the loophole regarding "lameduck" Members negotiating postCongressional employment, codifying additional earmark reforms adopted in midterm in the 1 10th Congress, continuing the Office of Congressional Ethics, maintaining strong PAYGO rules, and improving Congresss effectiveness by removing an abusive practice where popular measures are killed through unrelated. "gotcha" amendments on motions to recommit. On this last point, noted Congressional scholar Norm Ornstein pointed out in the Roll Call. August 13, 2007. "Using promptly, is a subterfuge, a way to kill bills, and reflects a desire not to legislate but embarrass vulnerable majority Members through a "gotcha" process. The Rules Package protects the minority and still preserves its ability to recommit. Specifically, the minority can offer a straight motio
Speech:	Under the previous order, threefifths of the Senators duly chosen and sworn having voted in the affirmative, the bill is passed. The bill was passed, as follows: S, 181 Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled.
Question:	What do you believe about tax increases?
Speech:	Thank you. Congressman AKIN. And you know, when you showed the chart over there about the revenue, the dip and then ultimately as taxes were cut. Federal revenues actually increased. The same thing happened under President Reagan when President Reagan cut taxes, I think one of the myths that is out there is that the deficit grew. Some people tried to attribute that to the tax cuts. But if you really go and look, youll see a similar chart, youll actually see an increase in revenue. Unfortunately, you had a Democratic controlled Congress that spent even more money than the new money that did come in. But in fact, more money came in as taxes were cut. And so I hope we use history as a guide. As you talked about earlier, there is no bill filed yet on this economic stimulus plan. We are expecting in the next week to possibly 2 weeks, nere will be a bill filed. And unfortunately, right now what youve got is a bidding war. What started off as maybe a \$400 or \$500 billion proposal has now reached over \$1 trillion where the proposals that were hearing now are \$1.3 trillion.
Speech:	Madam President, what this bill does is probably one of the most important things we need to do in this economic debate, and it is stop the planned tax increases that are going to happen in 2011 for every American. The large score that is being thrown around here assumes we are going to let those taxes go up, but we are not. This is a misrepresentation of the cost of this bill. This bill stops the current tax increases that are planned in 2011, keeps the current tax rate the same. The only change it makes is it lowers the top marginal rate from 35 to 25 percent for businesses, for investors, and for individual Americans. We call it the American option because it leaves money in the hands of the American people and businesses, rather than bringing it to Washington and distributing it our way, I encourage everyone to stop the planned tax increases with the American option.

Question:	Do you think that any increases in military spending that we have made should have been cut as well?
	If I can reclaim my time. Mr. Speaker, of course, I think that we have yet to deal, by the way, with the Department
	of Defense Appropriations bill, I know that it is going to be marked up, I anxiously look forward to seeing what
	this will consist of. But frankly, in the proposed budget I believe that that has, as an increase, one of the smallest
	levels of increases compared to the 22 percent increase that we saw on other appropriations bills. The fact is
	there is a role for the Federal Government. The number one priority of the Federal Government happens to be
	the national security of the United States of America. And so to say that because we might have an increase in
	the level of defense expenditures, as we live in a very dangerous world, and that somehow justifies a multinow
	what we are headed towardsa multitrilliondollar increase in deficit spending is apples and oranges when one looks
Answer:	at what should happen. So I would like to engage, if I might, with my friend from Laredo and say, as I look
	forward to yielding to him, that as we look at this challenge that families face when they are at the kitchen table,
	recognizing that with the difficult economic times that we have, they have to rein in their spending. They have to
	pay down their debts. They have to increase their level of savings. How is it that we, in this measure, can exempt
	40 percent the discretionary spending level that is here? How is it that we can say that reducing rates on things
	like capital gains, which doubled the flow of revenues to the Federal Treasury when reduced by 5 percent, how
	is it that we cant do that any longer under this socalled PAYGO provision? And I would be happy to yield to my
	friend if he would like to respond.
Ouestion:	So going back to my question, if you cannot control costs, can you sustain a health care system?
Question.	
A marriam	In my opinion, no, because, again, if you cant do it for a smaller system, how can you enlarge the system and
Answer:	somehow make it mysteriously work, particularly when there are no models? Massachusetts. Tennessee. TennCare,
	and so on and so forth, no one has an example of a governmentrun system that works.
	With respect to the provisions granting the states authority to take enforcement action, is it your intent
Question:	the states limit their enforcement actions under the new mortgage standards promulgated by the FTC, or
C	under TILA, only to those mortgage industry participants that are not currently supervised by the federal
	banking agencies or are not Federal credit unions?
	Yes, the Senator from Connecticut is correct. Our intention was to permit state attorneys general to bring civil
Answer:	actions only against mortgage industry participants that are not supervised by the Federal banking agencies or
	are not Federal credit unions.
Question:	Congressman from the great State of Missouri, bow do you understand this critical issue of D.C, voting
	rights?
	Thank you. Congressman ELLISON. One of the most significant measures to find its way into the United States
	Congress is legislation put forth by our colleague. ELEANOR HOLMES NORTON, who is the delegate for the
	District of Columbia. This legislation would allow the citizens of the United States of America, who live in the
	District of Columbia, to finally, to finally, after more than 200 years, have the opportunity to cast their vote to
	place a representative in the United States Congress. This is a city of almost 600.000 people, and many people
Answer:	around the Nation may be surprised to learn that the District of Columbia is the only city in the United States
	that must submit its municipal budget to the United States Congress. That, in and of itself, is an injustice. That
	means that this city, unlike any other city, is subservient to the Congress of the United States and they have no
	voice whatsoever. The sad thing goes further. Forty percent of the District of Columbia own their own homes,
	and coming from those homes are young men and women who have died in the world wars, who have died in
	Vietnam and who are still dying in Iraq and Afghanistan.
	Mr. President, if I could further inquire of my colleagueand I thank him for his responsehas not the
Question:	Speaker of the House indicated there is no intention of including a reconciliation instruction with respect
_	to climate change in the House provisions?
	Might I further inquire. Mr. President, of my colleague: Wouldnt it be logical for me to object if my conclusion
Answer:	is that there Is not going to be any reconciliation instruction with respect to cap and trade? We dont have it in the
	Senate resolution before us. The Speaker of the House has made clear they are not going to have a reconciliation
	instruction to be used In the House with respect to climate change legislation, I must say, I understand the
	concern, but I dont think there is a basis for it, I dont think there is a prospect that there is going to be the use of
	reconciliation for the purpose of climate change resolution coming back from the conference committee. It is not
	in the Senate, the Speaker has made clear they do not intend to use it on the House side, so I would just say to
	my colleagues that I understand the concern, I understand making the pointthat is fully legitimatebut I don't think it is a concern that is based on what is going to happen. There are plans on the House side to use reconciliation
	it is a concern that is based on what is going to happen. There are plans on the House side to use reconciliation
	for health care and for education. That clearly is part of their resolution. Not part of ours, but part of theirs. So
	I have to say to my colleagues, I dont think there is a basis for concern that the reconciliation process is going
	to be used for climate change legislation.

Question:	Should abortion be illegal?
Republican result:	Mr. President, I urge all my colleagues to read Debbies letter describing her experience with two abortions. Abortion is one of the, if not the, most serious violations of human rights that one person can inflict on another. It is the deliberate destruction of the offspring of a human beingwhich is without a doubt a human being. But to literally add insult to injury, abortionists are degrading women and endangering the health of the mothers by not adequately informing them of the risks and nature of abortion. Pregnant women, 4.100 of them each day, are procuring abortions, and most of them will not know the basic facts regarding the gestation of their infant, or the type of abortion procedure to be used. It is imperative that S, 2791, my bill requiring informed consent before abortion, be enacted into law in order to protect the emotional and physical health of this Nations women, I ask, in particular, my colleagues from Massachusetts to heed the plea of Debbie, their constituent, and support informed consent before abortion, I ask that Debbies letter be printed in the RECORD. The letter follows: DEAR SENATOR HUMPHREY: My first abortion was Illegal at the age of 18. That didnt stop the doctor from asking me if I wanted an abortion. That was all the counseling I received. It is tragic that the counseling most woman considering abortion receive is so nearsighted. Those who counsel women at abortion clinics are simply interested in rushing scared women and girls into abortions which many will regret later. It may take months, even years, but once the realization of what abortion is and does sets in, women suffer devastating emotional crises and find it very hard to forgive themselves for the role which they had in killing their own children. The tragedy of killing an unborn child by abortion is compounded by the physical harm done by abortion to many women who undergo the procedure, I myself suffered from a very bad infection after my abortion, an infection which spread throughout my body. Other women I know have
Democrat Result:	Mr. Speaker, 13 years ago today, the right of women to choose abortion in appropriate circumstances was affirmed by the highest court in the land. Abortion is legal, and the overwhelming majority of Americans want to keep it that way. Nevertheless, a vocal minority continues to threaten this fundamental right with a constant barrage of attacks on abortion rights. We must remain ever vigilant against these misguided efforts As a young prosecutor in New York City charged with investigating and prosecuting illegal abortionists, I witnessed firsthand the tragedy of back alley abortions. No one should want to force anyones loved ones back to the hands of the kind of butchers who performed abortions in those days before Roe versus Wade. Millions of women risked permanent disability as a consequence of procedures used in the home or in the underground network of back alley abortionists. Hundreds of women died annually as a result of botched abortions. On this day of remembrance, we must recommit ourselves to maintaining the right to choose. We must support the Supreme Courts refusal to weaken Roe versus Wade. And we must restore full abortion rights to those who suffer unfairly under legislated restrictions. Making abortions illegal didnt prevent abortion. It just made them dangerous and often lethal. A womans right to choose a safe and legal abortion must remain as sacred as any right American citizens enjoy.
Question:	Is climate change real?
Republican Result:	Mr. President, this amendment addresses the language in the preamble which could create the impression that the science is complete and that there is consensus that the Earth is currently threatened by global climate change. This is still an issue in dispute. The science community is engaged in the very active debate on the potential for global climate change and its effects. Next month, the Senate Energy Committee will hold another hearing on global climate change, and this will be an appropriate opportunity to debate the science of it. My amendment reflects my uncertainty, only adding the concept of potential to the threat of climate change.
Democrat Result:	Mr. President, years ago. Will Rogers remarked that everybody complains about the weather but nobody does anything about it. Our task, heading into the 1990s. Is to prove Will Rogers wrong, I am here this morning not just to complain about the dangers of global climate change, but also to talk about what we can and must do to reverse mankinds current perilous course. Few dispute the fact that the Earths climate is changing perceptibly andrelatively speakingrapidly. In the past year, the worlds consciousness has been jolted by droughts, floods, and heat waves of historic magnitude. We ignore these events and trends at our own peril. On that score, I am personally committed to seeing that this Congress leads the way in improving our understanding of global climate change, and in mobilizing an international response, I know that many of my colleagues share that sense of commitment, and hope that the recently formed Global Warming Task Force will be effective in moving us closer to those goals. Today, we are here to discuss the task forces first initiative letter to President Bush urging him to press for action to address global warming at the ongoing economic summit in Paris. The summit provides a critical opportunity to show the American public and the world that the United States will provide responsible leadership in dealing with the threat of global climate change, I join my colleagues in this call to action because the worldwide implications of climate change must transcend traditional political and national rivalries. The bottom line really is thatthrough population growth, industrialization, and energy usemankind is affecting the way our planet works. In recent years, scientists have observed major changes in the Earths atmosphere, oceans, and land masses. These changes include rising world temperatures, shifts in climate zones, depletion of the stratospheric ozone layer that shields the planet from harmful radiation, and possible rises in sea levels. If these global changes continue, they will have profoun

Question:	Should we have higher taxes for higher incomes?
GraphWriter Response:	They are They They They They They They on They They They They out They They out They They out They They Ont They They Ont They They Ont They They Ont They They They on They They They on They They They They They They They They
GPT-2 Response:	The answer is yes. The Tax Policy Center, a nonpartisan think tank, has found that the tax rate on the top 1 percent of earners has increased by more than 10 percentage points since the 1970s. The Tax Policy Center's analysis of the tax code shows that the top 1 percent of earners have paid more in taxes than the bottom 90 percent of Americans."
Question:	Should we have universal healthcare?
GraphWriter Response:	Mr. President, MR. SPEAKER that I know of, I believe, and I believe it would be better to stand on the part of the Senator from New York. If the Senator from New Mexico would yield, MR. SPEAKER 'S DEAR COLLEAGUE FROM MICHIGAN the Senator from New York would agree with the Senator that MR. SPEAKER 'S DEAR COLLEAGUE FROM MICHIGAN, I believe, to stand up, and I believe that MR. SPEAKER 'S DEAR COLLEAGUE FROM MICHIGAN, THE ONLY WEALTHY, INDUSTRIALIZED NATION, and MR. SPEAKER, and MR. SPEAKER, MR. SPEAKER 'S DEAR COLLEAGUE FROM MICHIGAN would stand THE ONLY WEALTHY, INDUSTRIALIZED NATION and stand up, and MR. SPEAKER, MR. SPEAKER 'S DEAR COLLEAGUE FROM MICHIGAN, and MR. SPEAKER, and MR. SPEAKER MR. SPEAKER and to help H. RES, 1381 and to help THE ONLY WEALTHY, INDUSTRIALIZED NATION and to help H. RES, 1381 and to stand H. RES, 1381 and help THE ONLY WEALTHY, INDUSTRIALIZED NATION and to stand THE ONLY WEALTHY, INDUSTRIALIZED NATION and to stand H. RES, 1381 and to help THE ONLY WEALTHY, INDUSTRIALIZED NATION and to stand H. RES, 1381 and to help THE ONLY WEALTHY, INDUSTRIALIZED NATION and to help THE ONLY WEALTHY, INDUSTRIALIZED NATION and help H. RES, 1381, MR. SPEAKER 'S DEAR COLLEAGUE FROM MICHIGAN, and MR. SPEAKER THE ONLY WEALTHY, INDUSTRIALIZED NATION and help to do it, and MR. SPEAKER it is the best thing to do it, MR. SPEAKER, and MR. SPEAKER THE ONLY WEALTHY, INDUSTRIALIZED NATION and to help H. RES, 1381 and to help THE ONLY WEALTHY, INDUSTRIALIZED NATION and help H. RES, 1381 and to help THE ONLY WEALTHY, INDUSTRIALIZED NATION and help H. RES, 1381 and to help THE ONLY WEALTHY, INDUSTRIALIZED NATION and help THE ONLY WEA
GPT-2 Response:	The answer is yes. The Affordable Care Act (ACA) is a law that allows Americans to buy insurance through the federal government. The ACA is a law that allows Americans to buy insurance through the federal government.
Question:	What do you think about the current president?
GraphWriter Response:	Mr. Chairman , if the gentleman will yield , WE the gentleman will find that WE the gentleman will find that THE COURTS in the United States the United States has a right to get the benefit of THE COURTS in the United States . If WE can get the benefit of THE COURTS in the United States , then WE will be the same as WE as WE as THE COURTS and get THE COURTS at THE COURTS and get THE COURTS , then WE will come back to the House , and then WE THE COURTS will come back to the House , and WE THE COURTS will come back to the House of Representatives . If we can get THE COURTS and get THE COURTS and get THE COURTS . If WE the House WE , then WE will come back to the House of Representatives . If WE the House WE , then WE will come back to the House of Representatives . If we can get THE COURTS and get THE COURTS , then WE will come back to the House of Representatives . If we can get THE COURTS and get THE COURTS , then WE will come back to the House of Representatives . If we can get THE COURTS , WE
GPT-2 Response:	I think he's a very good president.
Question:	Should we reduce national debt?
GraphWriter Response:	That is the reason MR. PRESIDENT on the floor of the Senate . That is the reason why MR. PRESIDENT on the floor . That is the reason why MR. PRESIDENT on the floor of the Senate . That is the reason why MR. PRESIDENT the Senate on the floor of the Senate . That is the reason why MR. PRESIDENT on the floor of the Senate . That is the reason why MR. PRESIDENT the Senate on the floor of the Senate . The House of Representatives is that MR. PRESIDENT on the floor of the Senate . That is the reason MR. PRESIDENT on the floor . That is the reason MR. PRESIDENT on the floor of the Senate . That is the reason MR. PRESIDENT on the floor of the Senate . That is the reason MR. PRESIDENT on the floor of the Senate . That is the reason MR. PRESIDENT on the floor of the Senate . That is the reason why MR. PRESIDENT that is the reason why MR. PRESIDENT on the floor of the Senate . That is the reason why MR. PRESIDENT the Senate on the floor and MR. PRESIDENT on the Senate floor on the floor of the Senate . That is the reason
GPT-2 Response:	The biggest threat to America is the threat of terrorism.