



Argument Search Engine

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- Interpreting queries as argumentative phrases
- Ranking Arguments
- Summarizing Snippets

Interpreting queries as argumentative phrases

What are typical user queries for args.me?



Name of a topic without any further description
E.g.: “Death Penalty”, “Social Media”, “Drugs”



A topic with some description added about the argumentative conclusion
E.g.: “Death Penalty effective”, “Drugs legal”, “Social Media dangerous”



A very precise query that specifies the question exactly
E.g.: “The election of Donald Trump was good for American Democracy”

Interpreting queries as argumentative phrases

What are typical user queries for args.me?



Name of a topic without any further description
E.g.: “Death Penalty”, “Social Media”, “Drugs”

Very likely



A topic with some description added about the argumentative conclusion
E.g.: “Death Penalty effective”, “Drugs legal”, “Social Media dangerous”

Common



A very precise query that specifies the question exactly
E.g.: “The election of Donald Trump was good for American Democracy”

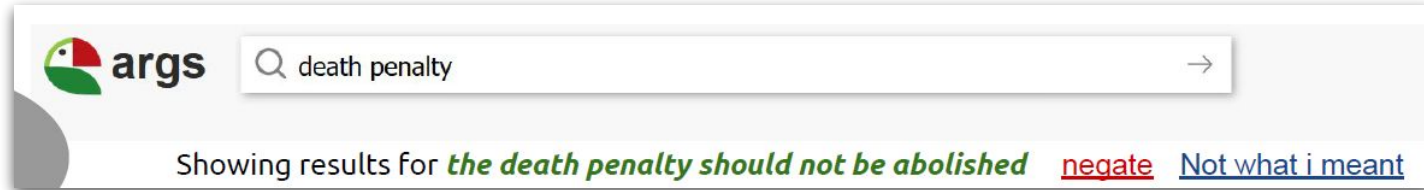
(Highly) unlikely

Interpreting queries as argumentative phrases

The solution:

Suggest fitting, more precise queries based on the user's input

Transform a very basic query with few information into a specific argumentative phrase/conclusion



Interpreting queries as argumentative phrases

Choosing the suggested conclusion



Most popular query that was searched by other users about this topic

- Requires that some users specify their input from the start
- Best usage on “single-word” queries (“Death penalty” \Rightarrow “Should Death Penalty be abolished?”)



Most relevant query

- How do we measure relevance without any additional information to a topic?
- Based on recency? (Query: “Donald Trump” in 2013 vs. “Donald Trump” in 2018)



Most indexed conclusion in the search-engine’s database relating to the topic/input

- Which conclusions were debated the most in our source-documents?

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Interpreting queries as argumentative phrases

Which argumentative phrases were debated the most in our source-documents?



Establish a (simple) ranking based on frequency of conclusions to every topic

- Fictitious example.: On topic “nuclear energy”

50% of debates (in our sources) about:

“Nuclear energy is good for the environment”

24% about:

“Nuclear Energy is dangerous for citizens”

21% about:

“Nuclear Energy is not good for the environment”

5% about:

Every other argumentative phrases / conclusions

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Not what I meant

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Every other argumentative phrases / conclusions



Interpreting queries as argumentative phrases

How do we implement this?

-  Usage of external libraries like 'Apache Lucene', 'Apache UIMA'
 - Indexing, ranking, retrieval already implemented in our framework
-  List the k most frequent conclusions given to a topic / topic phrase
 - Rank them among frequency in our sources (Online Debate Portals)
-  Display the highest ranking conclusion as a suggestion to the user when presenting results to a query
 - "Not what I meant" \Rightarrow 2nd highest ranking conclusion, etc.

Ranking Argument


Which argumentative phrases contains the most relevant argument component ?

-  The one factor is the Establish a (simple) ranking based on frequency of conclusions to every topic
-  Another factor contributing to ranking of the page is page index with rank level
 - Depending upon the corpa (Indexed pages) there can be more than one debates on the same topic
 1. Argument Mining
 2. Argument quality

Ranking Argument



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 - 1. Argument component
 - 2. Argument claims and premises
 - 3. Argument support or attack
 - 2. Argument quality

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 - 1. Argument Mining
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 - 2. Argument claims and premises
 - 3. Argument support or attack
 - 2. Argument quality
 - Argument Taxonomy
 - 1. Logic : Cogency to be clear and logical
 - 2. Dialectics : Reasonableness enquiry into metaphysical contradictions
 - 3. Rhetoric: Effectiveness towards result

Summarizing snippets



Users need to evaluate whether a document is relevant to their search before clicking

- Different snippets for the same document based on search query
 - args.me **pro** and **contra** snippet from same document
- Traditionally: Same summary for same search query
- Preferred: Different summary, depending on users' past search history and interests

Summarizing snippets



Problems with text summaries:

- For customized summaries profile accuracy is important and often not given
 - If the profile is accurate enough: privacy concerns
 - Can be perceived as censorship / can lead to confirmation bias
 - Performance/optimization issues
- Text summaries are made up of several snippets/text fragments
 - Important text fragments might not contain keywords from search query

Summarizing snippets



What information to include in a document summary?

- Title and URL of the webpage
 - Links to live and cached versions of the document
- Short text summary
 - Highlighted keywords from the search query

Showing results for: “Nuclear energy is good for the environment”

Nuclear energy is a good source of energy, if...

<http://www.debate.org/debates/Nuclear-energy-is-a-good-source-of-energy/1/>

1. **Nuclear energy** is a **good** source of **energy**, if not the best. It creates jobs, more power than many ... This source of **energy** creates a low impact on the .