Part 5

Demos and Applications
Many potential applications, in multiple domains

- **Education** – enhance persuasive essay writing
- **Legal** – enhance preparation for court
- **Finance** – swiftly understand pros/cons of an examined investment
- **Healthcare** – understand pros/cons of a suggested prognosis
- **Journalism** – quickly dive into a new topic, by reviewing pros and cons
- **Politics** – enhance interaction of citizens with government representatives
- **More...**
Example: From Search Engine to Research Engine

- **Problem statement**: given a topic, swiftly generate high quality content, allowing to take more informed decisions.
- **Approach**: model the content-generation process and provide the user with most relevant content at the right timing
- **An example** – shall smoking be banned?
The system constantly learns from a structured dialog with (millions of?) users...
### Supporting Claims

- A true breakthrough came in 1948, when the British physiologist Richard Doll published the first major studies that proved that smoking could cause serious health damage [REF].
- More recently, rabbinic responsa tend to argue that smoking is prohibited as self-endangerment under Jewish law and that smoking in indoor spaces should be restricted as a type of damage to others.
- However, the research in this area is limited and the results are conflicting; some studies show that smoking increases the risk of Alzheimer’s disease.
- Other research demonstrates that premature death caused by smoking may redistribute Social Security income in unexpected ways that affect behavior and reduce the economic well-being of smokers and their dependents [REF].
- It is believed that smoking increases the risk of these and other pulmonary and respiratory tract infections both through structural damage and through effects on the immune system.
- The socioeconomic/environmental hypothesis proposed that smoking results because many people with schizophrenia are unemployed and inactive, so smoking relieves boredom.
- There is some evidence for decreased rates of endometriosis in infertile smoking women [REF] although other studies have found that smoking increases the risk in infertile women [REF].
- One theory argues that the beneficial effects of nicotine on negative symptoms outweigh possible exacerbation of positive symptoms [REF].

### Opposing Claims

- Some also argue that smoking works to reduce the side effects of antipsychotics.
- The prominent scholar Yusuf al Qaradawi argues that smoking is no longer an issue of dispute among Islamic scholars due to the knowledge of health risks.
- Though smoking may help relieve symptoms of schizophrenia, smoking also counteracts the effects of antipsychotic medication.
- Some rulings suggest that smoking is permitted insofar as it may enhance the fulfillment of one's (religiously-ordained) duties.
- It is argued that smoking provides structure and activity, both of which may be lacking in the lives of those with serious mental illness [REF].
- The cognitive effects hypothesis suggests that nicotine has positive effects on cognition, so smoking is used to improve neurocognitive dysfunction [REF].
- Nicotine increases release of dopamine, so it is hypothesized that smoking helps correct dopamine deficiency in the prefrontal cortex and thus relieve negative symptoms [REF].
- Following the observation that smoking improves condition of people with schizophrenia, in particular working memory deficit, nicotine patches had been proposed as a way to treat schizophrenia [REF].
- The rationale for smoking bans posits that smoking is optional, whereas breathing is not.

---

**Relevant pro/con claims are instantly presented, and the user can personalize the output...**
Continue with suggesting relevant evidence

Relevant pro/con evidence – of different types - are presented for the user to consider...
Connecting evidence to relevant claims?

Fine grain relations of evidence to a particular claim are highlighted...
The generated output can be exported to various applications.

In a couple of minutes, the user obtains high quality and personalized output, that can be instantly exported into various applications...

Start Research!

Generate as PDF
Generate as PPT
Generate as ETTS
More…
Bridging the gap between end consumers and data owners

Target audience

- End Consumers
  - Lawyers, Law students
  - Students
  - Journalists / Readers
  - Physicians / Patients
  - Scientists
  - More...

- Data owners
  - Newspaper archives
  - Scientific publishers
  - PubMed
  - Wikipedia
  - More...

IBM Research Engine
Conclusions and demo

- Debate technology engines can be leveraged into real world applications of great practical value

- A synergistic human/machine collaboration?
  - The example of Claim Detection
    - Humans can suggest a small number of relevant claims with high precision
    - Claim detection engines can offer many relevant claims with non-perfect precision
    - Humans can easily filter this list of predicted claims

- The following demo is based on such a collaboration
IBM Debate Technology Demo

Topic

+ WIKIPEDIA

Top Claim and Evidence predictions