DGLab Question Answering System & Automatic Evaluation Method at NTCIR-13 QA Lab-3 for University Entrance Exam on World History Essay
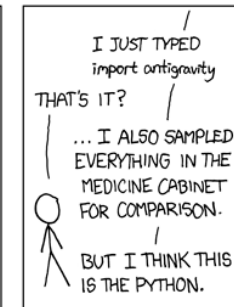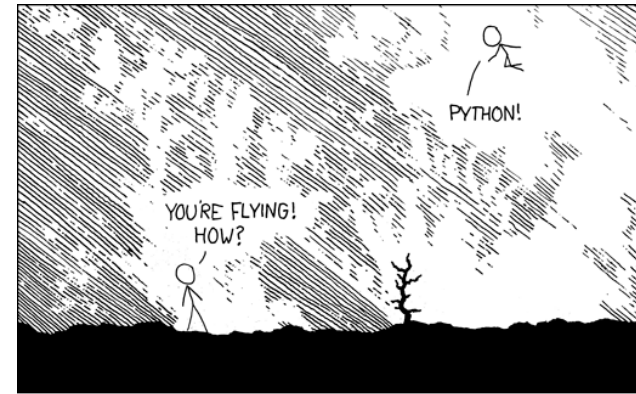
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2017-12-07

Outline

- Motif: contribution, intended
- Long Essay Question: an example
- Proposed System Architecture
- Known Issues
- Coda

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Contribution

a man can hope...

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as simple as possible

but not simpler

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Pragmatism

Rapid Prototyping
❖ Utilize highly accessible toolkits & data
Benchmarking
❖ 1st (expert & Pyramid) in Japanese
❖ 2nd in evaluation method

Long Essay Question

an example

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<P792W10-1>
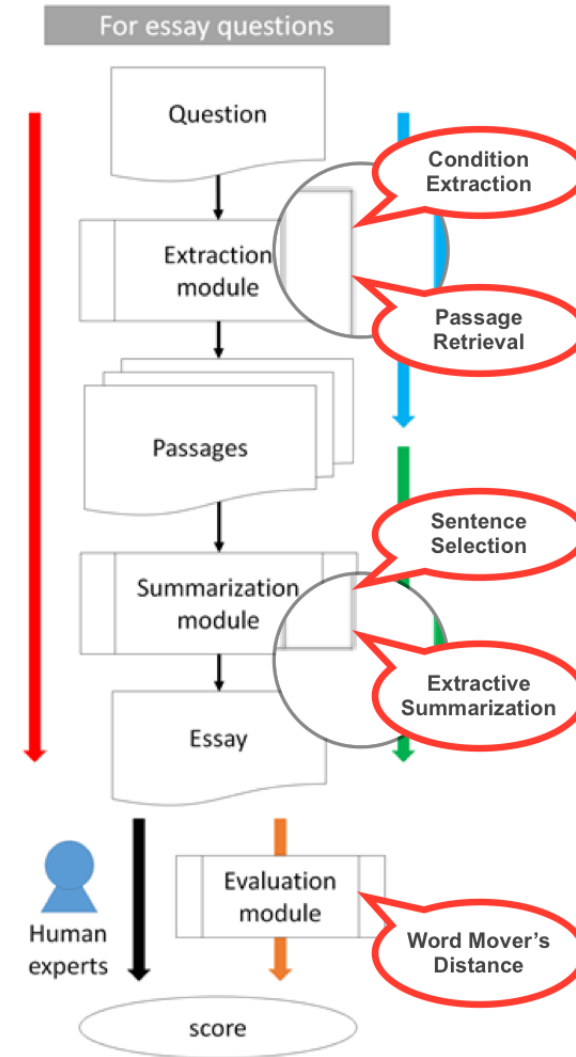
... discuss the changes that Russian foreign policy had on the international situation throughout Eurasia from the Congress of Vienna to the end of the 19th century, noting how the western powers responded. ... Use each of the 8 terms below at least once...
Afghanistan, Ili region, Primorye, Crimean War,
Treaty of Turkmenchay, Berlin Conference (1878),
Poland, Port Arthur

System Architecture

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Retrieve

- Indri query example
  ```
  #combine(
   #1(Afghanistan)
   #1(Ili region)
   #1(Primorye)
   #1(Crimean War)
   #1(Treaty of Turkmenchay)
   #1(Berlin Conference 1878)
   #1(Poland)
   #1(Port Arthur)
  )
  ```

Select

- Segment sentence
- ja: regex
- en: Stanford CoreNLP
- Filter
- sort by $\mathrm{Precision}_{\mathrm{keyterm}}(\text{sentence})$
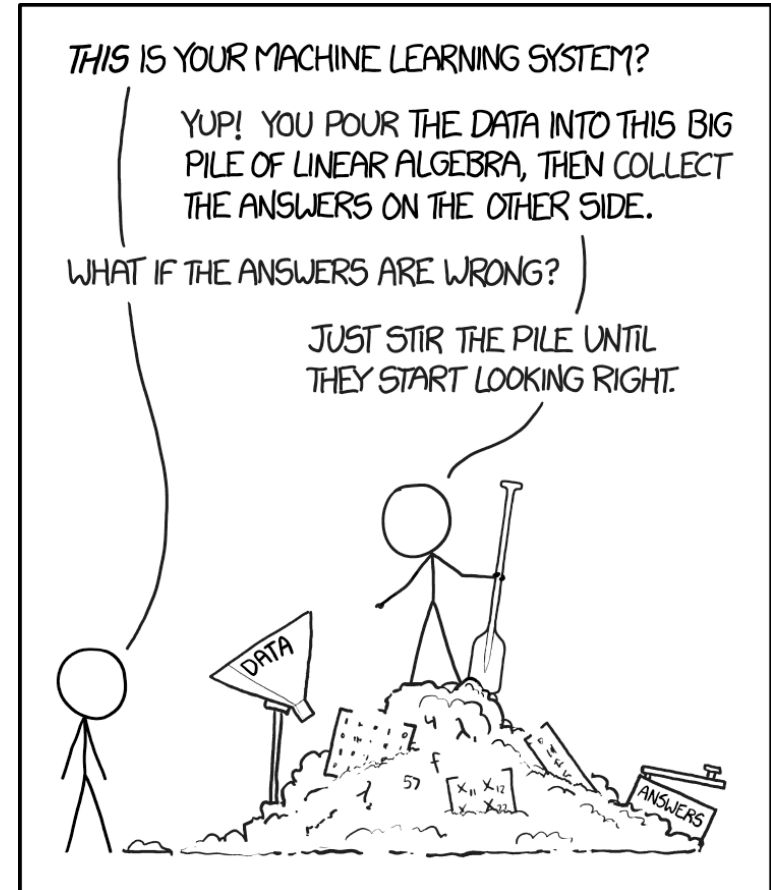- select
  - Top-7
  - ≤10 × answer length limit

Summarize

- ja: Shuca (Knapsack)
- Juman
- KNP
- en: LexRank

Minimal

Heuristics

Accessible

Known Issues

THIS IS YOUR MACHINE LEARNING SYSTEM?

YUP! YOU POUR THE DATA INTO THIS BIG PILE OF LINEAR ALGEBRA, THEN COLLECT THE ANSWERS ON THE OTHER SIDE.

WHAT IF THE ANSWERS ARE WRONG?

JUST STIR THE PILE UNTIL THEY START LOOKING RIGHT.

DATA

ANSWERS

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Symptoms (L792W10-1)

- ... describe the role of the Netherlands and the Dutch people in world history, from the late Middle Ages to the modern day, when integration is extending beyond national lines...
  - Grotius, coffee, Pacific War, Nagasaki, New York, Habsburgs, Treaty of Maastricht, South African War

recall

- Sentences of the summary:
  - Karl V united Netherlands 17 states under the House of Hapsburg's ruling.
  - The ports of New York and Boston prospered as slave trade port.
  - South African War is also known as Boer War.
  - ... took effect the European Union Treaty (Treaty of Maastricht)... in 1993, and European Union (EU) established.
  - Roma Treaty... EC constitution in 1992 ... Treaty of Maastricht (European Union Treaty) ... in '93
  - With the start of Pacific War, not only Germany and Italy have declared war against the U.S... the Axis of Japan, Germany, and Italy... the U.S., the U.K., and Soviet Union...
  - ... on December 8, 1941, Japan made a surprise attack on Hawaiian Pearl Harbor, and declared war against the U.S. and the U.K., so Pacific War (Asia-Pacific War) began.
  - However, when the Pacific War (Asia-Pacific War) began, ... had to wait for end of the war to become independent.
  - In hamburger and coffee shops developed in a global scale...

relevance: New Amsterdam?

relevance: Dutch Boer?

concision

coherence

relevance

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Coda

Takeaways

❖ Knowledge source dictates
❖ Passage scope matters
❖ Indri model rocks
❖ Evaluation method demands

and, still long way to go…

<(_ _)>

Thank you!

2017-12-07