2008 Paper 7 Question 11

Information Retrieval

Question Answering, i.e. the automatic creation of answers to factual natural language questions, is a relatively recent research topic in NLP/IR. It is evaluated in competitive evaluations, e.g., the TREC-QA competitions.

(a) Three different evaluation metrics have been used in TREC-QA. Define these three metrics, specify in which form the metrics require the system output, and illustrate them using the example questions and answers given in Figure 1 on the next page. [7 marks]

(b) There are factual questions that even humans find hard to answer, and such questions are harder for systems to answer as well. Name at least *three* types of such questions, and argue why they are difficult. [6 marks]

(c) There are ways in which participants can "cheat" in TREC-QA ("cheating" is defined as "changing one's behaviour in such a way as to get higher scores, without a real improvement in performance").

  (i) Describe *two* different ways of cheating.

  (ii) What countermeasures could the organisers of TREC-QA take to protect themselves against these ways of cheating?

[7 marks]

Question 1: When was Volkswagen founded?

By the early 1990s, Volkswagen's annual sales in the US were below...
VW was founded in 1937 as a public concern by the then Nati...
New wage-model at VW, Germany, 2004
factory in Russia, VW now also founded a new company for that purpose.
Founded in 1955, Volkswagen of America, Inc. is headquartered at Auburn...
Volkswagen was founded in 1937 by the German Auto Association.
Oldest Volkswagen Diesel found in California

Question 2: How many calories in a Big Mac?

Big Mac – Calories: 540 (28% USRDA)
Calories in a Big Mac (215g). 429. 23.0. Calories in a Cheeseburger...
Many associate Mcdonald's and other fast foods with high calories and...
How many calories does the average Big Mac from McDonald's restaurants...
NIL
789
540 calories.

Question 3: Who invented the paper clip?

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electronics, science and mathematics, invented the paper clip in 1899.
Who invented the paper clip? Ben T.
So, who invented the paper clip? When Johan Vaaler patented his...
Who invented the paper clip and did he or she think it was going to be...
He was employed by the owner of an invention office when he invented ...
Johan Vaaler, the Norwegian Jew who invented the paper clip...

Question 4: When did Madonna die?

NIL
June 2000

Figure 1. Some questions and a system's guess at answers. Boldfaced answers are
judged correct.