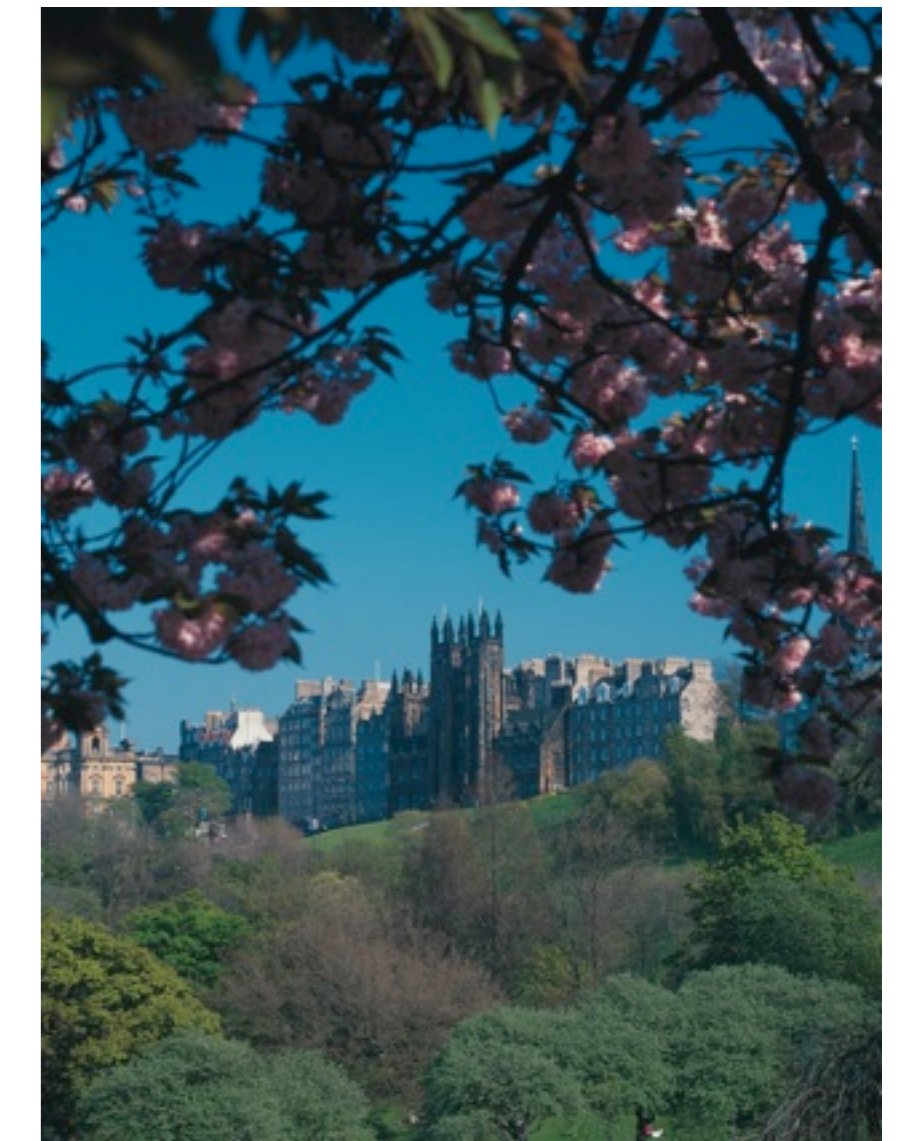




School of Informatics

Assisting Assessment of Online Collaborative Student Work

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Abstract

We investigate whether computational linguistic techniques can be used to automate the assessment of student essays and provide an objective measure of the student's understanding.

Motivation and Background

- In the School of Divinity the use of a wiki has led to a perceived increase in the quality of student work compared to just using conventional essays for assessment.
- For the wiki exercise, students work in groups of three where each student is asked to write 1000 words as well as contribute to the overall product.
- The essay is written by individual students, with no formal collaboration with other students.
- We would like an objective method of confirming these observations.

Objective and Methodology

- The specific aim of this project is to investigate whether computational linguistic techniques can be used to automate this process and provide an objective measure of the student's understanding.
- This can be achieved by identifying defined indicators of "critical thinking", "use of primary sources", looking at syntax etc. and by checking for the presence of these indicators which consist of certain words, phrases or structures.

This will include:

- The development of a prototype knowledge-based NLP system for recognizing the key words and phrases that have been identified as indicative of demonstrating "student understanding".
- The use of a statistical classifier trained on the available data to test how well it performs on the task given the restraint on the amount of available training data.
- An evaluation and identification of possible future directions.

What's exciting about the project?

- We believe that this particular example is novel in the use of automated techniques to identify specific indicators of student understanding.
- The project will be useful in evaluating the effectiveness of collaborative work, and it should also provide a guide and adjunct to traditional marking of single-author papers.
- In addition, it may be helpful in supporting students' reflection on their own work.

Example Data

"The rewards of paradise can be divided into the sensual and the spiritual. Sensual rewards include fruit (Q 36:57), luxurious couches (Q 52:24), a temperate climate (Q 76:14) and maidens with large, dark eyes (Q 44:54)."

Some characteristics:

- Encyclopedic style
- Frequent use of adjectives as qualifiers.
- Focus on noun phrases
- Use of primary sources

