

Interdisciplinary Study

--- a story of a computer scientist turned linguist or vice versa ---

Jason S. Chang
Department of Computer Science
National Tsing Hua University

Errors related to articles, prepositions, noun number, verb form, and complementation are among the most frequent and problematic writing errors produced by English as a Second Language learners. We introduce a method for learning to find complementation patterns from a corpus for the purpose of assisting L2 learners to write fluently and avoid errors. In our approach, phrase chunks are transformed into patterns for statistical analysis and filtering. The method involves learning regular expression templates from dictionary examples, extracting grammar patterns using the templates, and selecting authentic examples from an academic corpus. We present an interactive writing environment, *WriteAway*, which automatically displays examples grouped by pattern to prompt the users as they write away, or mouse around a draft during self-editing. Preliminary experiments and evaluation show that *WriteAway* with the acquired patterns and examples has the potential to promote better writing and improve writing skills in the long run.

Informal Abstract

In this talk I am going to introduce the prototype of an Interactive Writing Environment, *WriteAway*. An IWE is much like an Interactive Development Environment (IDE) that provides facilities to computer programmers for writing programs, with code editor, debugger, and intelligent code completion.

WriteAway does two things really well. First, it examines the unfinished sentence you just typed in and then automatically gives you tips in the form of grammar patterns (accompanied with examples similar to those found in a good dictionary) for continuing/editing your sentence. Second, *WriteAway* automatically ranks suggestions relevant to that sentence, so you spend less time looking at tips, and focus more on writing your piece.

An L2 learner might type in (incorrectly) "*This paper present method*" and without a clue about how to continue. *WriteAway* instantly gives her tips on grammar, collocation, vocabulary, as well as content:

WriteAway

This paper present method

[V] present something of something 52075

paper presents the results of a study conducted

paper presents the design and implementation of a mobile storage system called

[V] present something for doing something 27089

paper presents a parallel algorithm for solving the region growing problem based

we present a method for solving the following problem

At a quick glance, she might find a relevant grammar pattern, "**method for doing something**" with examples such as "... *paper presents/describes a method for generating solutions.*" That could tip her off as to change the sentence into "*This paper presents a method*" thus getting rid of tense and article errors, and help her continue with something like "*method for finding answers.*" This way, she can at once speed up writing and avoid making grammatical errors. This writing and tip-taking process repeats until a sentence is done. And as she starts writing a new sentence, the process starts all over again.

WriteAway organizes, summarizes, and ranks suggestions, so the user can, at a glance, grasp complex grammatical, collocational, lexical information and make quick writing decision.

WriteAway makes writing easy and turns writing into a continuous learning process by combining problem solving and information seeking together to create a unique user experience. *WriteAway* can even help people beat writers' block. *WriteAway* can be accessed at: <http://writeaway.nlplab.org> Give it a try.