

Essay Development Schemata to Support English Composition

Hiddenobu KUNICHIKA^{a*}, Yuki IKEDA^b & Akira TAKEUCHI^a

^a*Faculty of Computer Science and Systems Engineering, Kyushu Inst. of Tech., Japan*

^b*Graduate School of Computer Science and Systems Engineering, Kyushu Inst. of Tech., Japan*

*kunitika@ci.kyutech.ac.jp

Abstract: We propose essay development schemata to support learners in English essay writing. The schemata are expressed by unified vocabulary in unified level of detail. Since essay structures are expressed as such schemata, learners will be able to know what the structures of essay exist, recognize how each structure is different, and what kinds of information are necessary for composing a type of essay. Computers, moreover, can support learners in composing essays by referring to the schemata as the knowledge of the logical structures of English essay.

Keywords: English Learning, EFL Learning, Essay Writing, Paragraph Writing, CALL

1. Introduction

One of the most difficult tasks for English as a foreign language (EFL) learners is to compose a long persuasive passage. In order to compose such sentences in English, we need to have the knowledge of not only words and grammar, but also the logical structure of English. However many EFL learners do not have sufficient knowledge of the logical structure.

Although many intelligent computer-assisted language learning (ICALL) systems and support systems for composing sentences have been developed, it is difficult for these systems to support users who have insufficient knowledge of the logical structures of English. For example, Criterion (Educational Testing Service, 2007) and Writer's Companion (Visions Technology in Education, 2007) are useful systems. They, however, give users only templates which correspond to typical logical structures because target users of these systems are basically people who have the knowledge of logical structures. These systems may not provide enough support for users who have insufficient knowledge of logical structures of English.

We have already focused on the logical structure of paragraphs, defined paragraph development schemata which express typical logical structures, and implemented support systems for organizing paragraphs (Kunichika, Miyazaki and Takeuchi, 2009). At present, we are now focusing on English essays composed of several paragraphs. In order to implement support systems for essay writing, the purpose of this work is to define the knowledge of the logical structures of essays. In this paper, we describe the knowledge and its utilization.

2. Essay Development Schemata

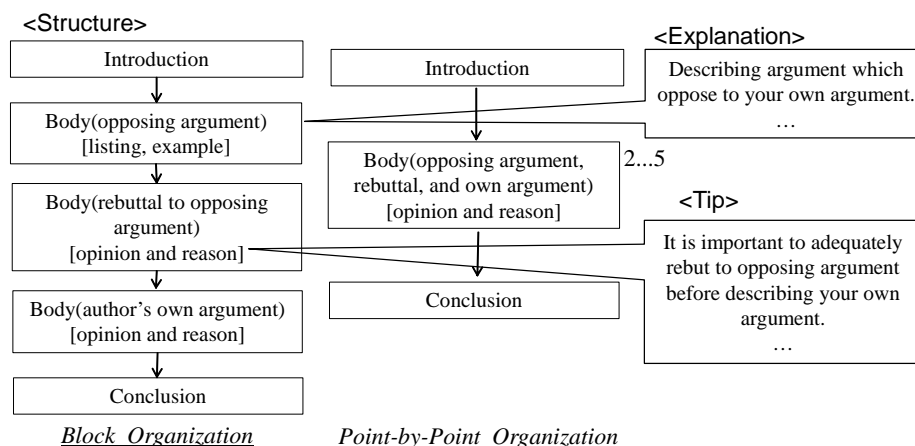
When we look for instructions on essay writing, we can find many textbooks. However, it is difficult for EFL learners to understand explanations of logical structures, because the types of structures introduced in books differ, vocabulary and the level of detail are not unified and there are only a few examples. Moreover, because the definitions of logical structures are written in natural language, they still have ambiguity and it is difficult for computers to treat them as knowledge without changing their formats.

In order to implement support systems for essay writing, computers need to have knowledge of logical structures of essays. There are different types of essays, depending on the purpose people have for writing an essay. Although an essay basically has three parts: introduction, body and conclusion, the details of the body vary according to the type of essay. Thus, computers need to know the detailed logical structure that corresponds to the essay type.

We examined eighteen textbooks for essay writing, e.g. (Chin, Reid, Wray and Yamazaki, 2012) and (Folse, Muchmore-Vokoun and Solomon, 2010), and identified seven types of essays: Argumentative, Narrative, Comparative, Cause-and-Effect, Process, Descriptive and Classification. After that, we formalized information on the logical structure of each type, and defined the knowledge as schema called essay development schema (EDS). The knowledge of logical structures can be defined by the following information.

- *Structure*: *Structure* expresses the logical structure of an essay, and is defined by a sequence of the roles of components in an essay. An essay consists of several paragraphs. Thus, components of *structure* correspond to paragraphs. Because the type of a paragraph is restricted according to the role of the paragraph in an essay, *Structure* also expresses the relationships between the roles and the types of paragraphs.
- *Explanation*: What and how should be described in each component of *Structure*. *Explanation* is expressed in natural language, and referred by learners, e.g. when composing the outline of an essay.
- *Tip*: Important points for composing a good essay and/or matters that require attention. *Tip* is also expressed in natural language. It is useful when revising an essay.
- *Words and phrases*: Information on words and phrases frequently used in a type of essay. The information consists of words, their parts of speech, the component of *Structure* in which the words are used, and restrictions on their use. *Words and phrases* are used for selecting appropriate words, e.g. a computer suggests words when rewriting an essay.
- *Condition*: Some EDSs have two types of logical structure. *Condition* expresses the information for selecting the type of logical structure.

EDSs are expressed by unified vocabulary in a unified level of detail. Since the logical structures of an essay are expressed as EDSs, we can reduce their ambiguity. That is to say,



<Condition>

- The number of items ≥ 4 -> Style=Point-by-Point Organization
- Type=describing opposing argument, rebutting to the argument, and stating author's own argument in different paragraphs -> Style=Block Organization
- Type=describing opposing argument, rebutting to the argument, and stating author's own argument in the same paragraph -> Style=Point-by-Point Organization

<Words and Phrases>

- Component=Body(rebuttal to opposing argument) -> although(conj), conversely(adv), ...
- Component=Body(author's own argument) -> actually(adv), in fact(p,n), indeed(adv), ...

Figure 1. The EDS of an argumentative essay

learners and computers will be able to know what types of essays exist, how each logical structure differs, and what kinds of information are necessary for composing a type of essay.

As an example, we show the EDS of argumentative essay in Figure 1. In *structure*, squares are components, i.e. paragraphs, numbers attached to components express repetitions of the components, and names in square brackets are types of paragraphs corresponding to the component. There are two types of logical structures: one is block organization and the other is point-by-point organization. Selecting one type of structure depends on the number of items or the policy of an essay. For example, when four or more items are described, point-by-point organization is suitable. *Condition* expresses such relationships as shown in Figure 1. *Words and phrases* keeps information on words and phrases frequently used in each component of *structure*.

3. Utilization of Essay Development Schemata

EDSs can be referred to by learners and computers as knowledge on essay writing. We give you examples of the utilization of EDS in this section. The writing process of an essay consists of four steps: pre-writing, drafting, reviewing and revising, and rewriting. The first step of the essay writing is pre-writing. In this step, authors need to gather ideas they will use to write about the topic, and organize the essay. That is, deciding which of the ideas they will use and where they will put the ideas in the essay. For learners who are unfamiliar with organizing an essay, computers will be able to propose some outlines of essays. When learners gather ideas, our system asks them to express the roles of the ideas in the paragraphs and essays. The system composes the outlines of paragraphs by referring to the roles of the ideas in the paragraphs (Kunichika, Miyazaki and Takeuchi, 2009). Next, the system selects several of the paragraphs by referring to the roles of both the gathered ideas and components of *structure* of an EDS, and puts each outline of the selected paragraphs into the appropriate component of the *structure* by also referring to *condition*. By repeating these processes, the system will be able to compose several essay outlines and propose them to learners. We have defined the knowledge of logical structures in a computer readable format. Therefore, computers can automatically compose the outlines of essays although already-existing systems give users only templates of essays.

4. Conclusions

We have defined EDSs which express typical logical structures of an English essay, and described their utilization. As our future task, we will evaluate EDSs and implement an English composition support system with EDSs for the four steps of essay writing. Moreover, we will expand this work from an essay to a larger unit such as a paper.

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References

- Chin, P., Reid, S., Wray, S., & Yamazaki, Y. (2012). *Academic Writing Skills 2*, CAMBRIDGE.
- Educational Testing Service. (2007). *The Criterion Teaching Guide*, Retrieved May 14, 2014, from http://www.ets.org/Media/Resources_For/Higher_Education/pdf/Criterion_Teacher_Guide_web_6487.pdf
- Folse, K. S., Muchmore-Vokoun, A., & Solomon, E. V. (2010). *Great Essays*, Cengage Learning.
- Kunichika, H., Miyazaki, C. & Takeuchi, A. (2009). An Intelligent Partner for Organizing a Paragraph, *Proceedings of AIED 2009*, 549-556.
- Visions Technology in Education. (2007). *Writer's Companion*, Visions Technology in Education.