

Chapter 3

The Possibility of the Generation of Literary Works by Abduction

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ABSTRACT

This chapter will show the possibility of literary-work (poems, stories, novels, etc.) generation. First, the author introduces the research field, language-sense processing engineering (LSE). The key concept in LSE is language sense. The author defines “language sense” as affective or psychological aspects of language, to analyze and show several types of literary-work generation. For instance, the author analyzes the emotional and technical part of waka generation to generate new waka (Japanese poems). One feature that can be used for literary-work generation is “intertextuality” proposed by J. Kristeva. Below, the possibility of the automatic literary-work generation will be shown using a strategy to generate waka. In addition, several strategies to generate literary works will be shown to illustrate the possibility of automatic literary-work generation. In addition, the author will show the possibility of literary-work generation by abduction, which is rather intelligent generation.

INTRODUCTION

Recently the importance of entertainment for senior citizens and children has been pointed out. It is rather difficult to maintain staff that can perform such entertainment as writing and reading poems. Accordingly, it is necessary to develop robots who can write poems, compose music, paint pictures, etc. An automatic poem- or story-generation system is one way to achieve this. This chapter will show the possibility of literary-work (poems, stories, novels, etc.) generation.

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poems). One feature that can be used for literary-work generation is “intertextuality” proposed by J. Kristeva. Below, the possibility of the automatic literary-work generation will be shown using a strategy to generate waka. In addition, several strategies such as “abduction” to generate literary works will be shown to illustrate the possibility of automatic literary-work generation.

BACKGROUND: LANGUAGE-SENSE PROCESSING ENGINEERING (LSE)

Since the very end of the 20th century, the author has been studying language-sense processing engineering (LSE). This is a specialized language processing where KANSEI¹ (the affective or psychological aspects of human activity) can be considered and dealt with. Of course, this is not proposed only for the computational generation of literary work. The concept of language sense can be applied to various other language applications. In this section, the author will illustrate language-sense engineering with several examples.

Definition of Language Sense

The key concept in LSE (Language-Sense Processing Engineering) is “language sense.” The author hereby defines the concept of language sense to show affective, emotional, or psychological aspects of language (Abe, 2002). In fact, language is used as a tool for communication. Accordingly, as Grice pointed out (Grice, 1957), language should correctly transfer the speaker’s or writer’s intention to the listeners or readers. However, sometimes we add effects to language, or intentionally remove certain information. These can sometimes become humor, a joke, *esprit*, or pun. These types of phenomenon cannot be logically explained, because they are a mental or intellectual human activity. By language sense, the author would like to express and explain a type of non-logical feeling in language. Therefore, some of the targets of language sense are to analyze, entertain, or automatically generate literary works, such as poems, humor, jokes, *esprit*, conversation, etc.

Tools Dealing With Language Sense

This section shows one of the tools for dealing with language sense. As shown above, a tool that can deal with the non-logical aspects of language is necessary to deal with language sense. The author believes that one of the non-logical aspects of language comes from ambiguity, or multiple meanings for words. This language feature causes various word effects. Next, the author will illustrate one of the tools used to achieve LSE.

Conceptual Base

A conceptual base (Kasahara, Matsuzawa, Ishikawa, & Kawaoka, 1996) is a type of dictionary that can express words (concepts) by a vector and calculate the similarity or associativity between words. A concept in the conceptual base represents the meaning of a word. Each concept, *Concept_i*, in the conceptual base is defined by a list of weighted attributes: an attribute *p_{ij}* of *Concept_i* and an importance *q_{ij}* of *p_{ij}*, where

$$Concept_i = \{(p_{i1}, q_{i1}), (p_{i2}, q_{i2}), \dots, (p_{in}, q_{in})\}. \quad (1)$$

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