

Chapter 10

Narrative Generation Using Psychological Value Variables: Probabilistic Model of Language Expressions and Values

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ABSTRACT

In terms of story generation, the author proposes a method wherein stories can be rewritten using psychological value variables to ensure positive evaluation from readers. This method includes two phases wherein (1) a story likely to be chosen by readers from a selection of stories in the story generation system is chosen and (2) the selected story is rewritten using words that readers can relate to. It is imperative to understand the psychological values of the recipient and the relation between linguistic expressions and psychological values to complete the two phases of this study. In this chapter, the author examines the definition of psychological values and how to obtain them as well as the verification of the relation between linguistic expressions and values. This study aimed to rewrite the output of a story generation system using psychological values, and this paper is a research report on the preparation for rewriting stories. A proposal is offered for a study to construct and verify the system.

INTRODUCTION

The goal of this research is to rewrite the output of a story generation system (Ogata & Kanai, 2010) using psychological values. Ogata's narrative research attempted to translate the output of a narrative into universal words using automatic translation and evaluate it. However, different regions have different values in evaluating automatically generated stories, and the individual values of a region are dependent on cultural and environmental differences. As a result, different regions have different stories and movies.

First, the concept of value should be clarified. Everything that humans feel is controlled by universal strategies. A strategy is a measure of the magnitude of value, and positive and negative values indicate

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individual differences. This is our general definition of a universal value. However, a universal value cannot include all universal values in the world. However, conceptual values can be evaluated using references to various viewpoints and past studies, and causes for individual differences can be considered. In the **BACKGROUND** section, we consider a universal value and discuss Tanida's concepts thereof.

We consider the following approaches, using differences in individuality with respect to a universal value:

- Rewriting selected stories with linguistic expressions that match the universal value of the reader
- Selecting a story that the reader is likely to select from multiple stories in the story generation system

For the two phases of research, it is necessary to define psychological values (strategies for universal values) and examine the relationship between psychological values and linguistic expressions. The value perceived by humans is quantified as a psychological variable, and individual differences are expressed by the magnitude of the variable. To rewrite a story with psychological value variables, it is necessary to develop a quantitative model of the psychological value variables and a stochastic model that expresses the relationship between the quantitatively defined value variables and linguistic expressions. In the **MAIN FOCUS OF THE CHAPTER** section, for each of them (Quantitative definition and Stochastic model), we consider the approach, data selection, collection methods, and verification methods. In addition, in the process of rewriting the expression of the story and selecting the story itself, we discuss possible challenges, such as the expected value and preference for a story beyond the superficial expression.

This chapter focuses on rewriting the output of a narrative generation system using personality differences for universal values. In the **SOLUTIONS AND RECOMMENDATIONS** section, we describe solutions for quantifying universal values, clarify the contents of questionnaires on specific psychological values, and describe how to collect utterance data. We extract linguistic expressions related to universal value variables and examine the extracted examples to confirm the validity of the relationships. In the **FUTURE RESEARCH DIRECTIONS** section, we discuss the concept and verification method of the system using the relationship between the value variables obtained from this experiment and linguistic expressions. We also present a paradigm for future research on achieving and verifying ideas for the story selection. In addition, we discuss a research approach that involves selecting a story that the reader is likely to select from multiple stories of the story generation system.

BACKGROUND

Why humans feel value is not discussed here. Although personality differences exist, this discussion proceeds on the premise that humans feel similar values and share them using a common language. For example, words that have lost value disappear from a community in which humans live. The premise is that words themselves have the universality of sharing value, and there are individual differences in how they are used. If individuality presupposes universal value (Brown, 1991), it may be possible to identify the structure of value by providing a typical example of universal values and examining differences in individuality. This section considers common examples of universal values.

From a biological point of view, a *universal value* reflects the goal of transmitting one's own genes. In the society, a competitive advantage can be considered a universal value. In the context of the preser-

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