

## SUMMARY OF Ph.D. DISSERTATION

School Graduate School of Science and Technology, Keio University	Student Identification Number	SURNAME, First name  OMORI, Kumiko
<b>Title</b>  A Speech Dialogue Control Method for Huge Vocabulary Tasks		
<b>Abstract</b> <p>This thesis proposes a new dialogue control method which can handle a huge number of words. A spoken dialogue interface which recognizes addresses or names is in demand, because the interface is expected to bring such advantages to service providers as reducing man-hours and the ability to offer around-the-clock service. When a conventional speech dialogue interface fails to recognize a spoken word, the system asks the user to speak it again. This reutterance cycle is repeated until the correct word is recognized. If this repeated cycle continues, the user feels irritated and finally abandons the dialogue.</p> <p>This study consists of two processes to realize a huge number of target words towards an efficient spoken dialogue interface. One is “presuppositional responses”, and the other is a dialogue control method which asks the attributes of words to narrow down the candidates when the recognition fails. Presuppositional responses come from human characteristics in that people tend to presuppose the utterance to be familiar or frequently-spoken. The strategy is verified through the huge data of human recognition of 87,944 Japanese sir names. This thesis presents a strategy to determine what words are to be presuppositional; presuppositional words should cover as many frequently-used ones as possible, while they should be small for high-accurate speech recognition.</p> <p>Secondly, this thesis proposes a new dialogue control method of obtaining the attributes of the first utterance, when speech recognition fails or when the correct answer is not included in the presuppositional words. This study defines effectiveness of attributes based on the difficulty of recognition and the decrease rate of lexical entropy. The system inquires the attribute that has the largest effectiveness and narrows down the huge target based on the recognition result of the attribute, if the first recognition fails.</p> <p>This thesis reports a successful implementation of a dialogue interface against the domain of 87,944 Japanese sir names, using a commercial speech recognition device. Our implementation interface selects 10,000 familiar sir names as presuppositional words, and adopts three attributes against its domain; the number of characters, the initials, and the phonemes of the initial Kanji character. Also to resolve the situations when the correct answer is not recognized using all of three attributes, parallel search of non-frequent words as well as presuppositional ones is performed to attain real-time and natural responses. Preliminary results show our interface provides as little stressful dialogues as by human operators.</p>		