

Assessment of the Progress of Senility and Dementia Based on a Discourse Analysis

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Abstract

The aim of this research is to evaluate whether a discourse analysis can be of use in assessing the progress of senility and dementia. The relationship between the frequency of inappropriate demonstratives, redundant terms such as fillers, and unnecessary pauses (hereafter senility elements) in conversations by non-demented subjects and their age and sex was analyzed. Also, the relationship of the frequency of senility elements in demented patients' conversations and the severity of their dementia was examined. The results of the analyses show that there is a clear correlation between age and the frequency of senility elements, and that there is a correlation to some extent between the level of dementia and the frequency of senility elements. The results imply that the discourse analysis proposed in this paper has the potential to be used for assessing the progress of senility and dementia.

Keywords: discourse analysis; inappropriate demonstratives; redundant terms; dementia; senility elements

Introduction

The Japanese population is now aging rapidly. Problems related to diseases caused by aging, such as dementia, are serious. It has become more and more important to prevent such diseases. However, current tests for senility and dementia are only examiner-friendly. They tend to impose great stress on examinees. This has led us to try to develop a new examinee-friendly test.

As a first step in developing such an examinee-friendly test, this study aims to evaluate whether a discourse analysis can be used as an effective method for judging the progress of senility and dementia.

A New Test Based on Discourse Analysis

This section defines the senility elements and describes how they are used for discourse analysis in the new test that we propose here.

Inappropriate Demonstratives

The use of an inappropriate demonstrative is defined as a speaker expressing something with a demonstrative that is not recognized as shared knowledge (Takubo & Kinsui, 1996a; Takubo & Kinsui, 1996b) by the listener.

For example, the underlined parts in the following dialog between A and B are inappropriate demonstratives:

A: *Nani o sagashite iru no.*
(What are you looking for?)

B: *Are ga mitsukaranai no yo.*
(I can't find that.)

A: *Arette.*
(That?)

B: *Sou, are, are, kagi ga.*
(Yeah. That's it. I can't find the key.)

Redundant Terms and Unnecessary Pauses

Redundant terms and unnecessary pauses are meaningless fillers and pauses that a speaker utters when he or she can't recall the proper intended words.

The underlined interjections and pauses in the following dialog between A and B are typical of redundant terms and unnecessary pauses:

A: *Kyou no ohiru wa nani o tabeta no.*
(What did you eat for lunch today?)

B: *Eetto ... anou ... aa, karee datta yo.*
(Well, ... er, ... ah, I had curry and rice.)

Examinations and Analyses

First, the relationship between the frequency of senility elements in each conversation by a total of 105 subjects (60 men and 45 women) and two factors, i.e., their age and sex was analyzed. The subjects were 40 years old and over and were non-demented.

The subjects were asked to talk freely on a topic given by the examiner. The examiner asked questions if necessary so that the subjects could continue talking naturally. The conversations were recorded in their entirety. Then the number of inappropriate demonstratives, redundant terms and unnecessary pauses per minute in each subject's discourse was calculated.

Secondly, the relationship of the frequency of senility elements in 30 demented patients' conversations and the level of their dementia was examined. In the same way as in the cases of the non-demented subjects, the number of inappropriate demonstratives, redundant terms and unnecessary pauses per minute in each patient's discourse was calculated. Then the result was compared with the severity of the patients' dementia assessed by the revised Hasegawa's dementia scale (hereafter HDS-R).

Results and Considerations

The results of the analyses are shown below. The relationship between age and the frequency of the senility elements is illustrated in Figures 1, 2, and 3 on the basis of gender difference.

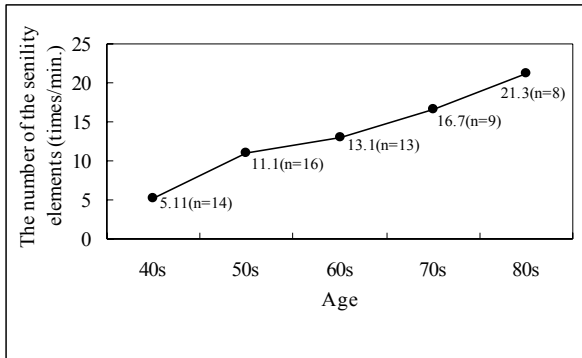


Figure 1: The relationship between age and the frequency of senility elements (men)

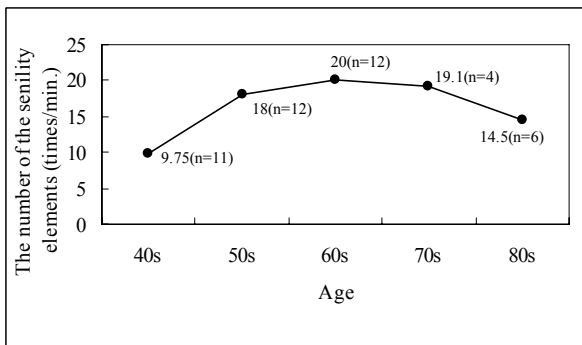


Figure 2: The relationship between age and the frequency of senility elements (women)

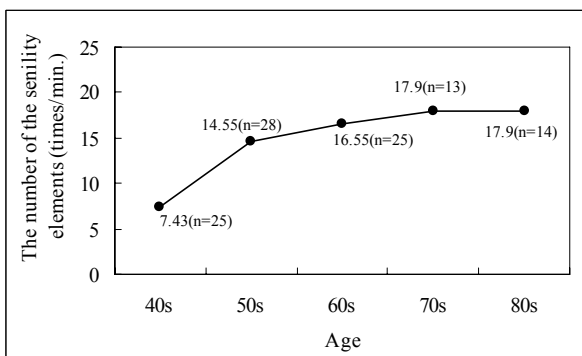


Figure 3: The relationship between age and the frequency of senility elements (both sexes)

It follows from Figures 1 and 3 that there is a clear correlation between age and the frequency of senility elements.

Contrary to the authors' expectations, however, the number of senility elements decreases in the age groups of the 70s and 80s as shown in Figure 2. It is assumed that too few data affected the result.

The relationship between the HDS-R scores and the frequency of senility elements is represented in Figure 4.

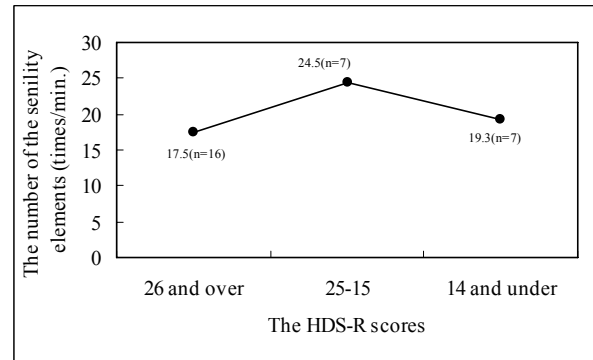


Figure 4: The relationship between the HDS-R scores and the frequency of senility elements

Figure 4 shows that there is a correlation between the level of dementia and the frequency of senility elements, except that the number of senility elements goes down a little in score group 14 and under. This could be attributed to an increased severity of dementia. Because of the increased severity, the number of words uttered by the patients in this score group is much smaller than in other groups. Thus the number of senility elements naturally decreases, too.

Conclusion

The fact that there is a clear correlation between age and the frequency of senility elements proves the validity of the authors' assumption that the older you are, the more difficult it is to recall the proper intended words. Therefore, it is clear that the discourse analysis proposed in this study has considerable potential for use in assessing the progress of senility.

In this research, the number of senility elements per unit time was calculated. In order to solve the problem of the extremely small number of words uttered by severely demented patients, it will be necessary to establish a method of effectively calculating the senility elements per unit word as opposed to per unit time in the authors' future research.

Acknowledgments

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References

- Takubo, Y., & Kinsui, S. (1996a). Fukusuu no Shinteki Ryouiki niyoru Danwa Kanri [Discourse Management in Terms of Mental Domains]. *Ninchi Kagaku [Cognitive Studies]*, Vol.3, No.3, 59-74, the Japanese Cognitive Science Society.
- Takubo, Y., & Kinsui, S. (1996b). Taiwa to Kyouyuu Chishiki [Dialogue and Shared Knowledge]. *Gekkan Gengo*, 25(1), 30-39.