



## Different Behaviors of the Adjective DE and Possessive DE in the Production by Chinese Adults with Post-Stroke Aphasia

---

Shengnan Ma, Boping Yuan and Hui Chang

EasyChair preprints are intended for rapid dissemination of research results and are integrated with the rest of EasyChair.

October 6, 2021

# Different Behaviors of the Adjective DE and Possessive DE in the Production by Chinese Adults with Post-stroke Aphasia

Shengnan Ma<sup>1</sup>, Boping YUAN<sup>1,2</sup>, and Chang Hui<sup>1\*</sup>

<sup>1</sup>School of Foreign Languages, Shanghai Jiao Tong University, Shanghai, China

<sup>2</sup>Churchill College, University of Cambridge, U.K.

\*corresponding author: [jameschanghui@163.com](mailto:jameschanghui@163.com)

## Abstract

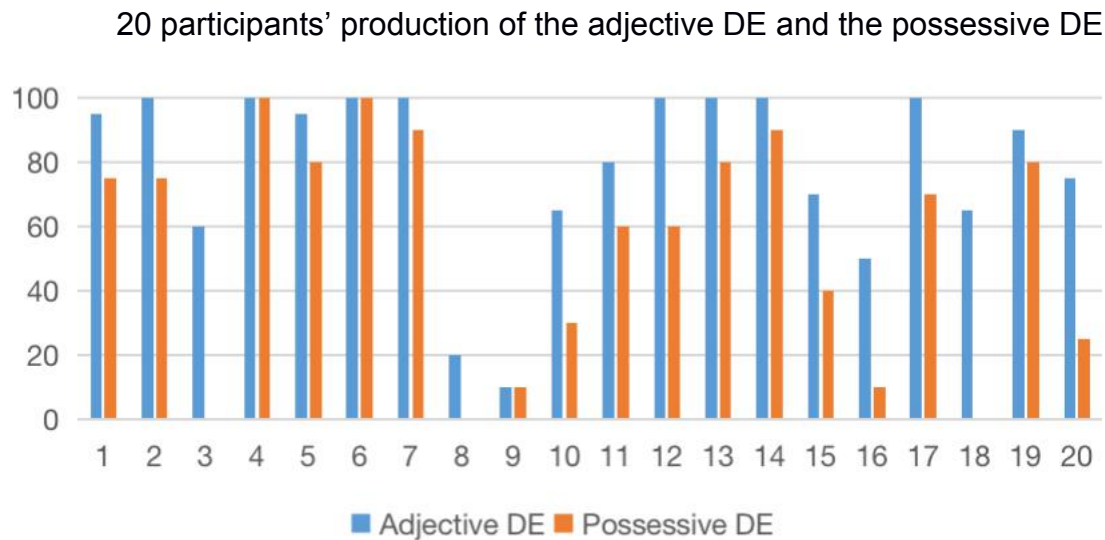
## Introduction

It has been reported in the literature that people with aphasia have impaired production of inflectional morphemes (Goodglass & Berko, 1960; Goodglass & Hunt, 1958; Kean, 1977), and almost all studies in the literature focus on morphemes in European languages, such as the English plural marking -s and the possessive marking 's (cf. Goodglass & Hunt, 1958; Stemberger, 1984; Szupica-Pyrczanska, Obler, & Martohardjono, 2017, Thompson, Fix, & Gitelman, 2002; Stockbridge, et al. 2021). However, to the best of our knowledge, no study has been done on the production of morphemes by Chinese patients with post-stroke aphasia. This paper is going to fill in the gap by investigating how the adjective DE and the possessive DE behave in the picture-naming production by adult Chinese patients with post-stroke aphasia. The adjective DE and the possessive DE are phonologically and orthographically identical in Mandarin Chinese (hereafter Chinese), but they occupy different positions in Chinese syntactic structures. The adjective DE is a morpheme, attaching the adjective to the noun being modified (i.e. in the form of Adj.+DE+Noun). The Adj.+DE is regarded as an adjunct attached to the NP (Huang, 1982; Chiu, 1993; Ning, 1993, 1995; Wen, 1996). However, the possessive DE heads a DP with the possessor in the Spec of DP and the possessee in its complement (Cheng, 1999; Xiong, 2005). It also has a function of checking the possessive case. Given the contrast between the adjective DE and the possessive DE with regard to their syntactic structures and functions, it was hypothesized that Chinese aphasics would perform better in producing the adjective DE than the possessive DE as the latter involves more complex computations, and its production can be more taxing to post-stroke aphasics.

## Methods

We collected data from 20 participants aged between 41 and 79 (Mean=65.2,SD=12.1) and they are all from northern China, namely southeastern Shandong Province and Northwestern Anhui Province, with their dialects belonging to Zhongyuan Mandarin, which is close to standard Mandarin. The author's dialect is also Zhongyuan Mandarin, thus the participants' production can be guaranteed to be understood. Among these participants, 13 are men whereas 7 are women. 6 people have received primary school education, 6 middle school education, 5 high school education and 2 junior college education. All of them have been attacked by stroke for more than one year, having passed the acute phase and being of moderate illness degree now. They all had production for both conditions.

## Results



As can be seen in the graph, participants' production of the adjective DE (Mean=78.75, SD=27.24) is better than that of the possessive DE (Mean=53.75, SD=35.76) ( $p=0.02<0.05$ ). Thereby, there is a significant difference between the production of the two conditions. To be specific, 17 people got higher accuracy rate in producing the adjective DE although three people (No.4, No. 6 and No.9) demonstrated no difference as for the two conditions. For the former 17 participants, all presented better production of the adjective DE than the possessive DE; 3 out of these 17 people (No.3, No.8 and No.18) even produced no possessive DE even if one person's accuracy rate of the adjective DE is much lower than the other two's, at only 20%. As to the 3 participants having no difference in the production of the adjective DE and the possessive DE, two of them achieved full scores for both conditions while one performed much worse than the former two people, only achieving 10% accuracy rate for each condition.

## Conclusion

It can be drawn that Chinese-speaking post-stroke aphasics produced the adjective DE more accurately than the possessive DE, and significant difference can be found between them, which proves that our hypothesis is right. The possessive DE involves more complex syntactic structure compared with that of the adjective DE, thus requiring more efforts to produce.

## References

- Cheng, Gong. (1999). *Universal View of Language*. Shanghai: Shanghai Foreign Language Education Press.
- Chiu, Bonnie H.-C. (1993). *The inflectional structure of Mandarin Chinese*. Ph.D. diss., University of California, Los Angeles.
- Goodglass, H., & Berko, J. (1960). *Agrammatism and inflectional morphology in English*. *Journal of Speech and Hearing Research*, 3(3), 257-267.
- Goodglass, H., & Hunt, J. (1958). Grammatical complexity and aphasic speech. *Word*, 14(2-3), 197-207.
- Gorno-Tempini, M. L., Hillis, A. E., Weintraub, S., Kertesz, A., Mendez, M., Cappa, S.F., Boeve, B. F. (2011). Classification of primary progressive aphasia and its variants. *Neurology*, 76(11), 1006-1014.
- Huang, C. -T. James. (1982). *Logic relations in Chinese and the theory of grammar*. Ph.D. diss., MIT.
- Kean, M.-L. (1977). The linguistic interpretation of aphasic syndromes: Agrammatism in Broca's aphasia, an example. *Cognition*, 5(1), 9-46.
- Ning, Chunyan. (1993). *The overt syntax of relativization and topicalization*. Ph.D. diss., University of California, Irvine.
- Ning, Chunyan. (1995). *De as a functional head in Chinese*. Paper presented at the annual forum of the linguistic society of Hong Kong, Hong Kong.
- Stemberger, J. P. (1984). Structural errors in normal and agrammatic speech. *Cognitive Neuropsychology*, 1(4), 281-313.
- Stockbridge, M. D., Walker, A., Matchin, W., Breining, B. L., Fridriksson, J., Hillis, A. E., & Hickok, G. (2021). A double dissociation between plural and possessive “s”: Evidence from the Morphosyntactic Generation test. *Cognitive Neuropsychology*, 38(1), 116-123.
- Szupica-Pyrzanowska, M., Obler, L. K., & Martohardjono, G. (2017). Morphological vs. phonological explanations for affix errors in agrammatism. *Aphasiology*, 31(8), 928-950.
- Thompson, C. K., Fix, S., & Gitelman, D. (2002). Selective impairment of morphosyntactic production in a neurological patient. *Journal of Neurolinguistics*, 15(3-5), 189-207.

Wen, Binli. (1996). *The syntax of Chinese and English free relatives*. Ph.D.diss., Guangdong University of Foreign Studies.

Xiong, Zhongru. (2005). A DP structure headed by DE. *Contemporary Linguistics*, 2, 148-165.

### **Acknowledgments**

We are grateful to all the participants in this study. Without their support, this study would be extremely difficult if not impossible.