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# FACULTY OF HUMANITIES NEWSLETTER 2015 ISSUE NO. 2

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**Semantic transparency and the semantic Head Effect of Chinese Disyllabic Compounds (co-authored with Shichang Wang). The International Association of Chinese Linguistics IACL-23. School of Business, Hanyang University, Seoul, Korea, August 26-28, 2015.**

**Abstract:**

*Semantic Transparency and the Semantic Head Effect of Chinese Disyllabic Compounds*

This paper studies the semantic head effect on semantic transparency for Chinese disyllabic compounds with the innovative online crowdsourcing experiments. “A semantic head is that part of the word which is a more general instance of what the entire word means, often defined in terms of the ‘IS A’ relation” (Packard, 2000, p.195). The existence or non-existence of semantic head is affected by both morphological structure and semantic transparency of compound. The semantic heads determine the core meaning, more specifically the semantic class, of compounds. In this sense they are semantically more important than the non-heads and thus often considered to be the structurally heads too.

We define the overall semantic transparency (OST) of a compound as the extent to which its meaning of the composition of the meaning of the constituent is retained in its lexical meaning. And the constituent semantic transparency (CST) of a constituent of a compound is the extent to which the meaning of the constituent is retained in the lexical meaning of the compound. Semantic transparency, both overall and constituent, can be quantified as an interval  $[0, 1]$ , in which the extremity 0 means fully opaque and the extremity 1 means fully transparent. In a disyllabic semantically transparent compound, the meanings of its two constituents are fully preserved in the meaning of the compound; so theoretically, there should be no significant difference between the constituent semantic transparency values of its two constituents. But for the semantically transparent compounds which have semantic heads, because of the inequality in the semantic status between the heads and the non-heads, we should observe significant difference between the constituent semantic transparency rating results of heads and non-heads, if there do exists a semantic head effect. And we may further predict that, since the semantic heads determine the core semantic features of compounds and speakers should perceive the

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semantic heads more strongly and clearly than the semantic non-heads, so the constituent semantic transparency rating results of the semantic heads should tend to be significantly greater than the rating results of the semantic non-heads. Based on a crowdsourced semantic transparency dataset, we designed a series of statistical tests to test our hypothesis.

The dataset used in this study contains the overall semantic transparency and constituent semantic transparency data of 1,176 Chinese mid-frequency NN, AN, and VN nominal disyllabic Chinese compounds. It is created by a set of on-line crowdsourcing experiments. A series of statistical tests were conducted. In Test 1, we confirmed that in the semantically transparent compounds which have semantic heads, the mean of the constituent semantic transparency rating results of the second constituents (usually semantic heads) is significantly greater than that of the first constituents (usually semantic non-heads). In Test 2, we found that in contrast to the compounds which have semantic heads, in the semantically transparent compounds which have no semantic head, there is no significant difference between the mean of the constituent semantic transparency rating results of the second constituents and that of the first constituents. In Test 3, we proved that the significant difference found in Test 1 is not likely caused by the differences in character frequency and/or family size of character between the second and the first constituents of the compounds. So we can exclude them. Our study shows that the both OST and CST vary according to the head/non-head status of the constituent. For instance, for semantically transparent compounds, the CST of a head is generally higher than the CST of a non-head. Our study confirms the semantic head effect on semantic transparency and also providing evidence to support the psychological reality of semantic heads in Mandarin Chinese.

[1] Jerome L Packard. 2000. *The morphology of Chinese: A linguistic and cognitive approach*. Cambridge University Press.